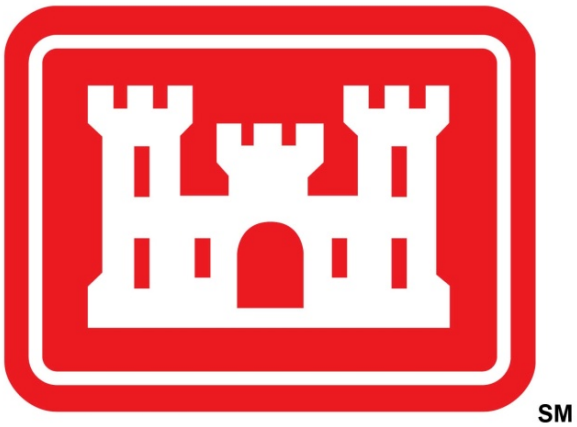

DESIGN ANALYSIS

U.S. ARMY
CRIMINAL INVESTIGATION COMMAND

(CATEGORY CODE 14114)

ADAPT-BUILD BIM PROTOTYPE OF THE

RA 5-9 FIELD OPERATIONS FACILITY FOR THE REGION

REPRESENTED BY FORT STEWART, GEORGIA

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EXECUTIVE SUMMARY

This Design Analysis has been prepared for the U.S. Army Criminal Investigation Command (CIDC) RA 5-9 Adapt Build facility. The RA 5-9 building has been developed for a generic site at Fort Stewart, Georgia. This document presents the design objectives, general information, design criteria and assumptions, and technical calculations for the project.

This Design Analysis has been developed in association with the Building Information Model (BIM) of the RA 5-9 Adapt Build facility. The project drawings are contained as 'sheets' within the BIM, with rare exception. The BIM Execution Plan is an important document which is to be used in conjunction with this Design Analysis.

The Design Analysis and Adapt Build BIM are intended as a guide to an A/E who is designing a CIDC project, and intended to establish a consistent baseline for new facilities. As a design professional the A/E is responsible for designing the project in accordance with all federal requirements and sound architectural and engineering practice. Creative interpretation of this work is encouraged as each future CIDC project will be located at a unique location, and may have some unique requirements and features.

[NOTE to AE: The CIDC Building Design Criteria provides the basic guidelines for evaluation, planning, programming, and designing new and renovated CIDC facilities. The criteria contained in that document establish the baseline level of features to be provided in these facilities. Planning, design, operation and maintenance of CIDC facilities shall comply with Army Military construction (MILCON) requirements, MILCON Best Practices, Corps of engineers, Norfolk District (NAO) Design Guidelines, and the Activity's Installation Design Guide.

Design and construction shall use the latest Unified Facilities Criteria (UFC), Unified Federal Guide Specifications (UFGS) and other applicable codes, regulations, Technical Instructions and Manuals, and criteria. The document is intended to supplement other applicable codes and standards, without repeating the common requirements found in those documents.

Note that the design shall comply with ANSI/ASHRAE 189.1 Standard for the Design of High-Performance Green Buildings.]

1 GENERAL DESCRIPTION

The U.S. Army Criminal Investigation Command (CIDC) is the Army's primary investigative organization and the premier investigative organization of the Department of Defense. The CIDC is responsible for conducting criminal investigations in which the Army is, or may be, a party of interest. Investigations range from death to fraud to computer crime, and can occur both on and off of military installations.

The CIDC deploys highly trained special agents and support personnel, a certified forensic laboratory, protective services units, computer crime specialists, polygraph services, criminal intelligence collection and analysis, and a variety of other services normally associated with law enforcement investigation activities.

The CIDC buildings are Category Code 14114 facilities. A Project Tracking Sheet is in Appendix A.

1.1 FACILITY DESCRIPTION

1.1.1 RA 5-9 Field Operations Building

The CIDC RA 5-9 field operations buildings house command, operation and administrative functions assigned to the U.S. Army Criminal Investigation Command. The estimated occupancy of the RA 5-9 facility is 11 people.

The *front* of the facility is designed for visitors, CIDC agents, and administrative staff; the *front* of the facility also includes support areas such as Restrooms, Showers, and a Multipurpose Lounge. The *back* of the facility is designed for suspects (Waiting, Interview Rooms, and Polygraph Areas), Evidence (Collection, Processing, and Storage) and other support areas (Vault, Equipment Storage). The *front* of the facility shall be identified as the administrative area and the *back* of the facility shall be identified as the suspect area.

1.1.2 Vehicle Processing Building

The Vehicle Processing Building shall be located adjacent to the Field Operation Building. This building allows for control and inspection of vehicles in order to collect evidence. This evidence may be retrieved by disassembling and removing parts, taking samples, inspection of the vehicle, and/or draining fluids.

The Vehicle Processing Building is detached from the main building, and shall be located outside of the ATFP stand-off distance.

1.1.3 Building Occupancy

The CIDC RA 5-9 building is classified as a Business Occupancy (Group B). The Vehicle Processing Building is considered a Storage Occupancy – Moderate Hazard (Group S-1; Motor vehicle repair garages complying with the maximum allowable quantities of hazardous materials).

1.1.4 Building Construction

Based on building size, the construction type shall be Type IIB (Non-combustible, Unprotected) as defined by the International Building Code. The Vehicle Processing Building shall also be constructed as

Type IIB (Non-combustible, Unprotected). Based on the location of the Vehicle Processing Building relative to the adjacent property line, as shown on the Site Plan, the West exterior wall of the Vehicle Processing Building is required to have a fire rating of 1 hour. (Also see section 2.6 Fire Protection)

1.1.5 Accessibility Requirements

The CIDC RA 5-9 facility is designed and shall be constructed to meet Department of Defense accessibility standards as presented in the ABA/ADA Guidelines.

1.1.6 Site Design and Construction

ABA/ADA compliant access from the parking areas and site walks to the building shall be provided.

Accessible parking stalls and pathways for both staff and visitor parking areas shall be provided.

Accessible vehicle parking signage and pavement markings shall be provided.

Parking areas located within the secure (fenced) government-vehicle parking area shall be used only by able-bodied personnel in government vehicles, and for storage of impounded vehicles retained as evidence, and are not required to meet accessibility requirements.

1.1.7 Facility Design and Construction

The main building entrance and secondary entrances, located outside of the secure (fenced) government vehicle parking area, shall be accessible.

Provide ABA/ADA required clearances and door approach clearances in the building main entrance as well as at secondary entrances located outside of the secure (fenced) government vehicle parking area.

Accessible drinking fountains and Multipurpose Lounge facilities shall be provided.

Accessible public restroom facilities, located near the Main Entrance, shall be provided.

1.1.8 Building Area

The maximum authorized gross building area for the RA 5-9 facility is 10,508 square feet. This area total includes both the RA 5-9 building (9,740 square feet) and the Vehicle Processing Building (768 square feet).

1.1.8.1 Area Definitions

Gross Area: Gross building area is measured to the outside face of exterior enclosure walls. Gross area includes floor areas, penthouses, mezzanines, and other spaces as noted below:

Half Space: Areas calculated as half space. Gross building area shall be calculated in accordance with TI 800-01 Design Criteria – Appendix B, CIDC:

Excluded Space: Some spaces are excluded from the gross area calculations, including roof overhangs used for weather protection, mechanical equipment platforms, and catwalks.

Net Area: Net area is measured to the inside face of the room or finish walls.

Net Area Requirements: Net area requirements for programmed spaces are included in this chapter. If net area requirements are not specified, the space shall be sized to accommodate the required function and to comply with code requirements, overall gross area limitations, and any other requirements.

1.1.9 Common Area

Public Restrooms are located adjacent to the Lobby area and shall comply with the ABA/ADA accessibility requirements.

Vestibules are provided as enclosed transition spaces between the outdoor environment and the building interior. A minimum distance of 7 feet is provided between the interior and exterior Vestibule doors.

Mechanical, Electrical, and Telecommunications Rooms: The Mechanical Room is designed to allow space for equipment maintenance and repair access without having to remove other equipment. Mechanical, Electrical and Telecommunications Rooms shall be keyed separately for access by maintenance personnel.

Exterior access only is provided for the Mechanical and Electrical Rooms.

The size of the Telecommunications Room (TR) for the RA 5-9 facility complies with the minimum requirements of I3A (2.5.2) and ANSI/TIA/EIA-569-B.

Recycling Storage: A Recycling Storage area is provided in the building. The Recycling Storage area is sized to accommodate recyclable containers, with adequate circulation space to allow access to move each container in and out of the Recycling Storage area.

Materials to be recycled include paper, corrugated cardboard, glass, plastics, and metals. An area shall be provided for collection and storage of fluorescent and HID lamps and ballasts.

2 DESIGN REQUIREMENTS AND PROVISIONS

The CIDC Facilities Building Design Criteria provides the basic guidelines for evaluating, planning, programming, and designing new CIDC facilities. The criteria contained in this document establish the baseline levels of features, spaces and finishes to be provided in these facilities. Planning, design, operation and maintenance of CIDC facilities shall comply with Army Military Construction (MILCON) requirements, MILCON Best Practices (MBP), and Corps of Engineers, Norfolk District (NAO) Design Guidelines. Design and construction shall use the latest Unified Facilities Criteria (UFC), Unified Federal Guide Specifications (UFGS) and other applicable codes, regulations, Technical Instructions and Manuals, and criteria.

- U.S. Army Corps of Engineers Criminal Investigation Command (CIDC) Facilities Building Design Criteria, 12 December 2011
- Architectural Barriers Act (ABA/ADA) Accessibility Standard for Department of Defense (DoD) Facilities; as directed by Secretary of Defense Memorandum, 31 October 2008
- Army Regulation (AR) 405-70 Utilization of Real Property
- AR 420-1 Army Facilities Management
- AR 195-5 Evidence Procedures
- AR195-6 Department of the Army Polygraph Activities
- AR 190-11 Physical Security of Arms, Ammunition, and Explosives
- Technical Criteria for the Installation Information Infrastructure Architecture,
- (I3A Technical Criteria), dated February 2010
- Fort Stewart Installation Design Guide
- Technical Guide for the Integration of the Secret Internet Protocol Router Network (SIPRNET) published by USAISEC Criteria
- UFC 1-200-01 Design: General Building Requirements
- UFC 3-120-10 Comprehensive Interior Design
- UFC 3-400-01 Energy Conservation (with 2008 revisions)
- UFC 3-520-01 Interior Electrical Systems
- UFC 3-530-01 Design: Interior and Exterior Lighting and Controls
- UFC 3-550-01 Exterior Electrical Power Distribution
- UFC 3-600-01 Fire Protection Engineering for Facilities
- UFC 3-580-01 Telecommunications Building Cabling Systems Planning/Design
- UFC 4-010-01 Department of Defense Minimum Anti-terrorism Standards for Buildings

- UFC 4-021-01 Design and O & M: Mass Notification Systems
- National Fire Protection Association (NFPA) Codes and Standards

2.1 SITE PLANNING AND CIVIL ENGINEERING

2.1.1 Site Planning and Civil Engineering

NOTE to Civil AE site designer from the developers of the Criminal Investigative Command (CIDC) prototype.

The site designer for the CIDC facility must have an understanding of the user's requirements, the governing design criteria requirements and the local requirements. You are responsible for integrating these elements (and more) into the final site design. The design shall be in accordance with CIDC Building Design Criteria, the US Army Corps of Engineers Design Guide, the Base Installation Design Guide, and the pertinent Unified Facilities Criteria.

The Criminal Investigative Command (CIDC) Building Design Criteria contains information specific to the user. Overall design guidance is located in Chapter 1. Site planning and civil engineering criteria are located in Chapter 3.

The USACE Norfolk District Design Guide (NAO DG) provides design criteria requirements for the development and preparation of the contract documents. These include plans, specifications and the design analysis. The NAO DG contains discipline specific sections (e.g. Civil, Architectural, Mechanical, and Electrical). Each section includes a detailed outline of the criteria requirements for the corresponding discipline.

Project Specific Information

The CIDC Adapt/Build documents were developed to varying levels of design effort. The Architectural component was developed to about 60%. The remaining engineering disciplines, with the exception of Civil, were developed to between 30%-35% design levels. Without a specific site to reference the Civil portion was limited to a 10% design level. The Civil AE is responsible for developing the site design from site selection to final development after a specific site has been selected.

The site plan depicted in the Adapt/Build prototype is a schematic site plan. It indicates the general quantities and relationships of visitor parking, staff parking and secure government vehicle parking as well as antiterrorism/force protection (ATFP) setbacks and unobstructed zones around the building.

The following comments are intended to emphasize and clarify certain design elements for the site designer:

1. *Site Geometry:*
    a. *The portion of drive between the staff parking and the visitor parking may be omitted if access to both can be otherwise accommodated (i.e. by virtue of location on a corner lot) and if the Local Authority Having Jurisdiction (AHJ) does not require it for emergency perimeter access.*

2. *Secure Government Vehicle Area*
    a. *There are two vehicle access points depicted on the prototype site plan. One is a sliding motor-operated gate. The other is a double swing gate.*
        i. *The emergency double swing gate access need not be provided if not required by the AH. The designer is to verify these requirements. The preference is generally to omit this feature if not required by the AHJ.*
        ii. *The sliding motor-operated vehicle gate with access control. Site designer to confirm type of security access (key pad, card reader, etc) with user. Coordinate fire department access requirements with the Base Fire Marshall.*
    b. *The striped area in front of Vehicle Processing Building entrance is intended to provide maneuvering room for tow trucks delivering vehicles for processing.*
    c. *The location of outdoor mechanical/electrical equipment, including transformer and future mobile generator may only be adjusted in consultation with the CIDC proponent and the USACE CoS District and upon written consent of both. These items must remain within the CIDC secured area.*
    d. *The fence around this area is to be 8 feet high with no barbed wire on top.*
    e. *There are two sizes of parking spaces in the secured parking area: government sedan (9'x18') and HUMVEE (12'x18'). The designer is to design for the number of each vehicle type, developed in collaboration with the user.*

3. *Vehicle Processing Building*
    a. *Note the vehicle lift. The designer should consider this when pursuing a geotechnical investigation of the site.*

4. *Weapons Clearing Barrel*
    a. *Two weapons clearing barrels shall be located on site. One shall be located at the entrance to the building from the secure government vehicle area. The other shall be located at the entrance to the building from the Staff parking area. Confirm the exact location at each entrance with the user.*

5. *ATFP*
    a. *The building is currently classified as "Inhabited" for Stand-off distance determination in accordance with the definitions provided in UFC 4-010-01 dated 9 February 2012. These plans are based on the prototype. The designer is responsible for confirming building classification based on current version of UFC 4-010-01.01.*

2.1.2 Site Lighting

The backlight and glare ratings of building-mounted luminaires and all other luminaires shall comply with ASHRAE 189.1-2009, Table 5.3.3.2B and Table 5.3.3.2A, respectively.

All exterior lighting shall comply with either the maximum uplight ratings of Table 5.3.3.2A or the uplight requirements of Table 5.3.3.3, both of which are found in ASHRAE 189.1-2009.

Site lighting sources shall be fluorescent and metal halide with good color rendition. Outdoor lighting levels are in accordance with the Illuminating Engineering Society of North America (IESNA) Lighting Handbook illumination levels.

Site lighting is controlled by photocells, motion sensors, and timers for energy conservation. Coordinate exterior lighting control with the Base (Installation). The main entrance lights and building identification lights shall be on at night. Other exterior lighting shall be controlled by motion sensors.

2.2 STRUCTURAL ENGINEERING

2.2.1 General

CIDC RA 5-9 is a one-story steel framed structure with a spread footing foundation. The building is located at the Army base in Fort Stewart, Georgia, 31.88°N 81.61°W.

The footprint of the building is rectangular in shape and measures approximately 63 ft by 178 ft. The building walls, both interior and exterior, are non-load resisting elements except for wind cladding or designed lateral pressure.

2.2.2 Framing System

The building is a steel framed structure with hollow structural section (HSS) steel columns and wide flange steel beams at the eave elevation. The roof framing to support the green roof system shall be a 5" concrete deck (3" concrete cover over 2" composite steel deck) supported by steel joists and wide flange steel girders.

Braced frames provide lateral load resistance and columns are designed with fully pinned fixity at the base.

A steel frame structural system is selected for the CIDC prototype buildings as it is the most common type of structural system throughout the United States, and common in many parts of the world. Alternative structural systems include cast-in-place reinforced concrete and load bearing masonry. While these systems are used in some geographic areas, they are not common in all areas where a prototype building may be constructed.

A steel frame system has the advantage of allowing relatively flexible interior planning. A steel frame system is also a good structural system for areas subject to hurricanes, such as Fort Stewart, Georgia.

The typical roof form of the prototype buildings is a hip or gable roof form with a slope of 4:12 to 6:12. This roof form is commonly and efficiently constructed with prefabricated light gauge steel trusses.

A precast concrete structural system is not considered a good choice for the prototype, since the CIDC buildings are relatively small (the largest is approximately 16,000 square feet). In addition, the cost effectiveness of this type of system is extremely dependent on the proximity of the site to a precast concrete plant.

Another advantage of a steel frame system is that steel is a commonly recycled product. It is likely that a new CIDC building built with a steel frame would have a high content of recycled material. The American Institute of Steel Construction estimates that structural steel beams and columns produced at U.S. mills has a recycled content above 80%. In addition, when the building is dismantled in the future, 50 or more years from now, the steel structural components can be easily recycled (or reused). Masonry and concrete structures do not have the same environmental advantages.

The Vehicle Processing prototype buildings utilize a load bearing masonry wall as the main structural system, and prefabricated light gauge steel trusses for the roof. This system is selected as the building is small, and the required interior finish is painted concrete block. This is a durable interior finish; if the building were framed in steel providing a durable interior finish would be expensive. The most likely choice would be cement plaster applied to a cement board base installed on steel studs.

2.2.3 Foundation

Gravity load and lateral load are delivered to the columns that are supported by the concrete footings. Typically the top of footing shall be 1.5 ft below finished floor for interior and exterior footings. The design frost line is 0 inches below soil cover.

For gravity loads (Dead and Live Loads), strip and column footings supported on undisturbed native soil stratum or structural fill with proper compaction can be designed for net allowable soil bearing capacities of 2,000 pounds per square foot (psf) for service loads. Allowable soil bearing capacities for transient loads (Wind and Seismic Loads) are permitted to increase by 30% to approximately 2,700 psf.

The ground level slab-on-grade shall be designed to meet the load requirements. The floor slab shall be designed as “floating”, ground supported and without rigid connections to columns and perimeter walls. Contraction joints are provided to control shrinkage crack pattern. Although the slab is designed as unreinforced slab, 0.1% of steel reinforcement is provided by either wire mesh or rebar. Vapor barrier shall be provided under the concrete slab.

Final foundation design shall be confirmed based on the findings of the geotechnical report.

2.2.4 Special Features

Although not a structural feature, the green roof does require a more substantial roof structure than a conventional roof system due to its weight. Other than coordination to ensure that the structure conforms to any requirements unique to the green roof system, there are no other special features to the structure.

2.2.5 Force Protection System

The building envelope shall meet the ATFP criteria governed by section B.3 of UFC 4-010-01. Glazed openings on the exterior walls shall be designed for blast pressure. Since the building is within a controlled perimeter and has a standoff distance of 82 feet the structural frames for the glazed openings shall therefore be designed for type II explosive. The design criterion shall be “low level of protection”.

2.2.6 Fire Resistance

A Fire Rating of 0.0 hours has been assigned to column and roof elements. (Also see section 2.6Fire Protection)

2.2.7 Design Criteria

This building satisfies the design specifications of IBC 2006 and ASCE-7.

2.2.8 Load Assumption

2.2.8.1 Dead Load

Actual calculated weight of permanent construction per SEI / ASCE-7.

2.2.8.2 Live Load

Minimum live load allowances are determined per IBC and parameters provided by USACE NAO.

2.2.8.3 Snow and Roof Live Load

Design Ground snow load is 0 psf. The roof live load of 20 psf shall control over the Flat Roof Snow Load of 0 psf. Effect of snow drift and unbalanced snow load are not considered due to the geometry of the roof.

2.2.8.4 Wind Load

Basic wind speed shall be 110 mph, based on a 3-second gust, and Importance factor 1.00, Exposure Category "C". Buildings are designed as enclosed structures.

2.2.8.5 Seismic Load

According to the calculation from USGS, S_s=29.00%g and S_1=10.00%g for this site. This yields a Seismic Design Category C.

Site Class D has been chosen at this time. Seismic loading shall be confirmed using the findings of the geotechnical report.

2.2.9 Material Properties

2.2.9.1 Concrete Strength

Footings	f'c = 4,000 psi
Foundation walls and pedestals	f'c = 4,000 psi
Ground floor slab	f'c = 4,000 psi
All concrete not otherwise specified	f'c = 4,000 psi

2.2.9.2 Reinforcing Bars

ASTM A 615 Grade 60, Deformed	fy = 60 KSI

2.2.9.3 Masonry

Design masonry assemblage strength	f'm = 1,500 PSI

2.2.9.4 Steel

Wide flange shapes - ASTM A 992	fy = 50 KSI
Tube shapes - ASTM A 500 Grade B	fy = 46 KSI
All other structural steel - ASTM A 36	fy = 36 KSI
Welding electrodes - AWS D1.1	E70XX

2.2.10 Structural Calculations

Structural calculations are contained in Appendix C.

2.3 ARCHITECTURE

2.3.1 General

The design shall be in accordance with the current version of the Unified Facilities Criteria UFC 1-200-01 Design: General Building Requirements and other applicable criteria, codes and standards.

2.3.2 Goals and Objectives

Overall architectural goals for the facility are to provide a functional, visually appealing facility that is a source of pride for facility users, and the installation, and which meets the functional requirements of the CIDC mission. The RA 5-9 buildings are designed and shall be constructed to be:

- compatible with the surrounding Fort Stewart architecture
- technically sound building components and systems
- a safe and healthy work environment
- durable and easily maintained over a 50 year projected life

2.3.3 Exterior Design

The exterior materials, roof forms, and detailing are based on the approved Installation Design Guide and are compatible with the local context and climate. The finish colors match the other buildings in the district.

The proposed design is based on Southern Colonial / Georgian vernacular architecture for a formal and contextual appearance. The vernacular form is adapted to a high-performance 'green' roof and parapet design.

The gable roofs at the entrances compliment the main building in form, material, and color. The regional materials, including brick, stonework, and other exterior elements, reflect Fort Stewart's design theme – "Southern Living Station of Choice".

The exterior materials, finishes, and form of the Vehicle Processing Building shall generally match the materials, finishes, and form of the main building.

2.3.4 Entrances

Building entrances are readily identifiable. Entry materials include standing seam metal roofing and a durable exterior insulation and finish system. Entrances shall be accessible. Secondary entrances are provided with a canopy roof for protection from adverse weather.

2.3.5 Exterior Windows and Doors

Windows shall comply with the requirements of UFC 4-010-01 Design: Minimum Antiterrorism Standards for Buildings. Exterior shading is provided by a series of sunshades. Glazing shall contain special coatings (i.e. Low-E) to meet the energy performance requirements defined in section 2.5. Reflective glass coatings shall not be used.

2.3.6 Exterior Façade

The exterior envelope shall consist of brick masonry. Cold-formed steel studs and sheathing provide the 'back-up' to the masonry wall.

2.3.7 Vegetative Green Roof

The proposed roof system is vegetative green roof. The proposed system is a low growing, easily maintained system classified as an extensive green roof. This roof is suitable for hot, wet climates, suitable for buildings with a high roof area to wall area ratio, and suitable for buildings which are fully conditioned over long hours. The CIDC RA 5-9 building at Fort Stewart meets all of these criteria.

The suitability of a Vegetative Green Roof for this facility has been evaluated, in part, using the criteria presented in the Department of the Air Force Engineering Technical Letter (ETL) 11-8: Decision Criteria for Installing Vegetative Green Roofs. (Appendix D)

The benefits of the vegetative green roof, when compared to a sloped metal roof, include reduced energy consumption and reduced peak cooling load. The life of the roof membrane is extended with a green roof, as it is protected from solar radiation. Additional benefits include storm water quantity and quality control and reduction of heat island effect.

2.3.8 Rain Water Harvesting

The rainwater harvesting system shall employ roof drains and drain piping in order to harvest rain water and convey it to a single point of collection. At the point of collection, rainwater shall be transported through a vortex filter and stored in a below grade storage tank. Harvested rainwater shall be supplied to toilets and urinals, and used for irrigation and other non-potable water uses.

2.3.9 Canopy Roofing

For entrance canopies and roof, standing seam roof panels are used, installed over roof sheathing and cold-formed steel joists. The gable roof form is similar to the roof form of local buildings and accents the rectilinear form of the main building.

2.3.10 Architectural Louvers

Painted aluminum louvers with insect screens shall be used for outdoor supply air and exhaust/relief air. The louvers are designed and shall be located to comply with UFC 4-010-01.

2.3.11 Interior Volume

The common ceiling height throughout the facility is 9 feet above the finished floor (AFF). Larger spaces have higher ceilings; 10 feet or 10 feet 8 inches AFF.

The Vehicle Processing Building ceiling height is set at approximately 16 feet. This allows for a HumVee to be lifted to a height of 64 inches, using a mobile lift. Clearance above the vehicle is approximately 4 feet. All mechanical and electrical systems in the Vehicle Processing Building are below the finished ceiling.

2.3.12 Interior Doors and Frames

Painted hollow metal frames and stained solid core wood doors shall be provided in most areas. Hollow metal doors shall be provided at service areas. Double doors are provided when convenient for moving equipment.

2.3.13 Door Hardware

A card access is used to restrict access to the facility. Security locks are required for Arms Vault, and the Evidence Processing, Evidence Custodian and Evidence Depository Rooms.

2.3.14 Arms Vault

The Arms Vault shall be constructed from modular reinforced concrete panels. The Arms Vault shall include a day gate.

2.3.15 Vehicle Lift

A mobile column hydraulic vehicle lift shall be installed in the Vehicle Processing Building. Coordinate capacity of lift with the largest vehicle anticipated by user to be processed.

The ceiling height in the Vehicle Processing Building is approximately 16 feet.

2.3.16 Acoustical Design

The acoustical design of the facility is important considering the sensitive nature of many conversations within the building. These requirements are based on ANSI/ASHRAE Standard 189.1 and the book Architectural Interior Systems by Flynn, Kremers, Segil and Steffy.

To provide for sound privacy between spaces, partition and ceiling construction shall be constructed to meet these specific Sound Transmission Class (STC) ratings.

Administrative Offices	STC 40
Conference and Interview Rooms	STC 45
Polygraph Room	STC 50
SIPRNET	STC 50
Mechanical Room	STC 50
Conference Rooms	
when adjacent to Restrooms	STC 53
Conference Rooms	
when adjacent to Mechanical Room	STC 60

Background noise levels are controlled through the selection and placement of equipment and through a variety of other design techniques. An acceptable background noise level (defined by Noise Criteria Curve or NC) shall be provided based on the following criteria:

Conference Rooms	NC 30
Private Administrative Offices	NC 30
Polygraph Exam Room	NC 30
Open Administrative Offices	NC 35
Interview Rooms	NC 35

The Polygraph Exam Room shall be designed in accordance with Department of the Army Polygraph Regulation AR 195-6.

2.4 COMPREHENSIVE INTERIOR DESIGN (CID)

2.4.1 General

Comprehensive Interior Design (CID) for the project includes Structural Interior Design (SID) and Furniture, Fixtures and Equipment (FF&E). The SID and FF&E are outlined in this Design Analysis.

There are two separate functions in the RA 5-9 facility. The *front* of the facility shall be for visitors, CIDC agents, and administrative staff; the *front* of the facility also includes support areas including Restrooms, Showers, and a Multipurpose Lounge. The *back* of the facility shall be for suspects (Waiting, Interview Rooms, and Polygraph Areas), Evidence (Collection, Processing, and Storage) and other support areas (Vault, Equipment Storage). The *front* of the facility shall be identified as the administrative area and the *back* of the facility shall be identified as the suspect area.

2.4.2 Structural Interior Design (SID)

Design goals for the finish materials used for ceilings, walls and floors include the following:

- aesthetically pleasing and functional finishes
- durability and ease of maintained
- recycled and sustainable materials
- neutral or medium toned interior colors

2.4.3 Interior Environmental Quality

All adhesives and sealants used on the interior of the building, including those used for HVAC systems, shall comply with ASHRAE 189.1 Section 8.4.2.1.1 or 8.4.2.1.2 .

Paints and coatings used on the interior of the building shall comply with ASHRAE 189.1 Section 8.4.2.2.1 or 8.4.2.2.2 .

Floor covering materials installed in the building interior shall comply with

- Carpet: Carpet shall be tested in accordance with and shown to be compliant with the requirements of CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350). Products that have been verified and labeled to be in compliance with Section 9 of the CA/DHS/EHLB/R-174 comply with this requirement.
- Hard surface flooring in office spaces: Materials shall be tested in accordance with and shown to be compliant with the requirements of CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350).

All office furniture systems and seating installed prior to occupancy shall be tested according to ANSI/BIFMA Standard M7.1 and shall not exceed the limit requirements listed in Normative Appendix E of this standard.

Ceiling and wall system emissions shall be limited. These systems include ceiling and wall insulation, acoustical ceiling panels, tackable wall panels, gypsum wall board and panels, and wall coverings. Emissions for these products shall be determined according to CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350) and shall comply with the limit requirements for either office or classroom spaces.

2.4.4 Interior Wall and Ceiling Finishes

Wall finishes, floor finishes, and ceiling finishes shall conform to the requirements of NFPA 101, U.S. Army Corps of Engineers CIDC Building Design Guide, United facilities Criteria 3.120.10 Interior Design with change 1, and Unified Facilities Criteria 3-600-01 Design: Fire Protection Engineering for Facilities.

Opaque interior surfaces in daylight zones shall have visible light reflectance greater than or equal to 80% for ceilings and 70% for partitions higher than 56 inches (1.54 meters) in daylight zones, when ASHRAE 189.1 Prescriptive Option 8.4 is chosen.

2.4.5 Ceilings

Acoustical ceiling tiles shall be 2 foot square tiles with a minimum recycled content of 60%. Square edge tiles are provided throughout the facility. The ceiling grid shall be a 15/16” wide metal, nonferrous, intermediate-duty system for lay-in acoustical panels. The finish of grid shall be a factory-applied *white* paint finish.

Moisture resistant gypsum board shall be used for ceilings in the Restrooms, Showers, and Vestibules.

Impact resistant gypsum board is used for the ceilings of suspect area, including Suspect Waiting and the Suspect Toilet Room. Impact resistant gypsum board is used for the ceiling of the Vehicle Processing Building.

The exposed gypsum board ceilings and exposed structure shall be painted with interior oil based semi-gloss enamel.

2.4.6 Walls

Gypsum drywall, with a minimum recycled content of 60%, shall be the common interior wall material. Impact-resistant gypsum wall board shall be used from floor level to a height of 4 feet in Corridors, Suspect Waiting Areas, Storage Rooms, and Visitor Waiting areas. Fire-rated (type X) gypsum drywall shall be used for fire-rated walls. Cement board shall be used for shower walls.

Interior wall finishes shall be moisture and mildew resistant paint. Gypsum board surfaces shall be finished with a latex primer and two coats of eggshell finish of premium quality professional paint.

Concrete block walls shall receive a finish of one-coat of latex block-filler followed by one-coat of alkyd wall primer/sealer and one finish coat of oil based semi-gloss enamel paint.

Ceramic wall tile is used in toilet/shower areas in the administrative and suspect areas. Although no specific size is stated, where quarry, porcelain and ceramic is required in a design standard, it is

preferred to use larger tiles, such as 8x8 or 12x12 to minimize the grout joints; use when acceptable by the use of the space within the facility. Tile shall be through-color. Colored grout with sealer shall be used. Ceramic tile wainscot shall extend 60 inches above the finished floor (AFF).

Corner Guards shall be provided at outside corners at right angles. Corner guards shall be through-color polycarbonate or rubber.

Chair rail is used in the corridors throughout the administrative areas of the facility. Chair rails shall be solid hardwood, AWI custom grade with molded shaped profile.

2.4.7 Flooring

Carpet tile shall be used throughout the administrative areas of the facility which includes Visitor Waiting, administrative areas, Offices, Corridors, Conference Rooms, and Large Interview Rooms. Carpet tile shall have minimum density of 6600 and 26 oz weight with a severe wear rating; carpet tile shall be tufted cut and loop pile multi colored and patterned 100% solution dyed premium branded nylon with high performance backing. Straight rubber base is used with the carpet tile.

Carpet static control shall be provided to permanently control static buildup to less than 3.5 kV when tested at 20% relative humidity and 70 degrees F in accordance with AA TCC 134. The Telecomm Room shall be finished with non-static resilient flooring.

Ceramic floor tile shall be used in toilet and shower areas in the administrative area of the facility. The tile shall be a minimum of 12” x 12” through-color and slip resistant. Colored grout with sealer shall be used. Tile base and other pre-manufactured trim pieces shall be used.

Resilient tile flooring shall be used in the Multipurpose Room, Evidence Processing, Evidence Custodian, Evidence Depository, Photo ID and Corridors in the suspect areas of the facility, and in Small Interview Rooms. Resilient vinyl bio-based composition tile (VCT) shall be through-color commercial grade. A rubber cove base shall be used with VCT.

Thresholds of nonferrous materials shall be used where there is a transition of flooring materials. Stone thresholds shall be used where ceramic floor tile adjoins another floor material.

Concrete floors shall be exposed in the Mechanical, Electrical, Arms Vault, and Telecomm Rooms. These floors shall receive a finish of two coats of clear hardener/sealer.

Concrete floors shall be exposed in the Suspect Waiting, Suspect Toilet, TOE, and Vehicle Processing Building. These floors shall have a colored slip-resistant epoxy finish.

2.4.8 Furniture, Fixtures & Equipment

2.4.8.1 Fixed Furnishings

All building entrances employ an entry mat system consisting of a scraper surface, an absorption surface, and a finishing surface. Window treatments shall be provided on every exterior window and at

any interior view window where privacy is required. Window treatments are not provided in suspect areas. Blinds shall be one-inch wide horizontal room-darkening commercial grade aluminum blinds with hardware and controls.

FF&E procurement shall be through activity, construction contract, or procuring agency as stated in the project contract/ requirements.

Signage Assemblies consist of three primary elements; a structural rail, removable copy inserts and a wall mounted frame with trim. The signage rails shall be designed to hold injection molded plastic insert strips with integral color and tactile letters, symbols and Grade II Braille, to comply with ADA requirements. The rails and copy insert strips shall be snapped into a molded plastic frame which is secured to the wall surface. There shall be three types of signage: Identification, directional and ADA required.

Dry erase marker board shall be provided for the Multipurpose Room.

Shower area lockers shall be constructed of solid polymer and stacked two high.

Architectural woodwork shall be provided in the Multipurpose Room and Photo ID area. All architectural woodwork shall be Architectural Woodwork Institute (AWI) custom grade; all exposed surfaces are clad with high pressure plastic laminate. Upper and lower cabinets shall be closed; countertops and splashes shall be made of solid surface materials.

2.4.8.2 Movable Furnishings

Develop design for FF&E in accordance with activity requirements with all movable furnishings required to produce an optimum functional facility. The design of FF&E package is to include the purchase and installation of collateral equipment. Those items which are considered movable include:

Wood Casegoods

Metal Furniture and Laminate-clad Furniture

Storage and Filing

Task Seating

Lounge Seating, Waiting Area Seating and Guest Seating

Interview Room and Conference Room tables

Waste Receptacles and Recycling Containers

Wall-mounted Clocks, Literature Racks

Small Appliances - Refrigerator and icemaker, microwave oven, commercial coffee makers shall be *ENERGY STAR* Equipment

Flat screen TV and ceiling mounted projector*s* shall be *ENERGY STAR* Equipment

2.5 SUSTAINABLE DESIGN

2.5.1 Design Criteria

CIDC facilities shall be designed and constructed in accordance with the following Department of Defense policies and directives on energy and resource conservation:

- Army Energy Security Implementation Strategy of 2009
- Department of the Army Memorandum: Sustainable Design and Development Policy Update (Environmental and Energy Performance) October 27, 2010
- ECB 2010-14 and ECB 2011-1
- Energy Independence and Security Act (EISA) of 2007
- Energy Policy Act (EPACT) of 2005
- Executive Order (EO) 13423 Strengthening Federal Environmental, Energy, and Transportation Management, 2007
- Executive Order (EO) 13514 – Federal Leadership in Environmental, Energy and Economic Performance, 2009
- Federal Leadership in High Performance and Sustainable buildings, Memorandum of Understanding (HPSBGP/MOU), 2006
- UFC 3-400-01 Energy Conservation (with 2008 revisions)
- USACE Army LEED Implementation Guide

The RA 5-9 facility at Fort Stewart is designed and shall be constructed as a High-Performance Green Building. The sustainable design approach for this facility is based on meeting two standards; compliance with ANSI/ASHRAE Standard 189.1 and LEED Silver Certification. The ASHRAE Standard 189.1 is similar to the LEED-NC v3.0 rating system, but includes more mandatory provisions.

2.5.2 ANSI/ASHRAE/USGBC/IES Standard 189.1 – 2009 Standard for the Design of High-Performance Green Buildings

The project shall be designed to comply with Standard 189.1.

2.5.2.1 Sustainable Sites

The site for the building project shall comply with the site selection criteria set by ASHRAE 189.1-2009, 5.3.1 *Site Selection*.

The site hardscapes shall comply with heat island effect mitigation criteria set by ASHRAE 189.1-2009, 5.3.2.1 *Site Hardscape*.

See ASHRAE 189.1-2009, 5.4.1.1 *Effective Pervious Area for All Sites* for site project compliance for pervious surfaces.

The backlight and glare ratings of building-mounted luminaires and all other luminaires shall comply with ASHRAE 189.1-2009, Table 5.3.3.2B and Table 5.3.3.2A, respectively.

All exterior lighting shall comply with either the maximum uplight ratings of Table 5.3.3.2A or the uplight requirements of Table 5.3.3.3, both of which are found in ASHRAE 189.1-2009.

2.5.2.2 Water Use Efficiency

2.5.2.2.1 Site Water Use Reduction

A minimum of 60% of the area of the improved landscape is bio-diverse planting of native plants and adapted plants other than turf grass.

A maximum of one-third of the improved landscape is irrigated by potable water.

Irrigation systems are controlled by either a qualifying smart controller that uses evapotranspiration (ET) and weather data to adjust irrigation schedules and complies with the minimum requirements or an on-site rain or moisture sensor that automatically shuts the system off after a predetermined amount of rainfall or sensed moisture in the soil.

Qualifying smart controllers meet the following minimum requirements:

Irrigation adequacy – 80% minimum ET of the plant material

Irrigation excess – not to exceed 10% when tested in accordance with IA SWAT Climatological Based Controllers 8th Draft Testing Protocol

2.5.2.2.2 Building Water Use Reduction

Plumbing fixtures and fittings comply with the flush and flow rates requirements established in ASHRAE 189.1-2009, 6.3.2.1 *Plumbing Fixtures and Fittings*.

Additional water use requirements are noted in ASHRAE 189.1, 6.3.2.3 HVAC Systems and Equipment and ASHRAE 189.1, 6.4.2.1 Cooling Towers.

Measurement devices with remote communication capability are provided to collect water use data for each of the building subsystems; potable water and harvested rain water.

All building measuring devices, monitoring systems, and sub-meters are configured to the meter data management system. The meter provides, at minimum, daily data and records hourly water consumption. The meter data management system is capable of electronically storing water meter, monitoring systems, and sub-meter data and creating user reports showing calculated hourly, daily, monthly, and annual water consumption of each measurement device and sub-meter. The meter data

management system also provides alarm notification as needed to support requirements set by the Water Use Efficiency Plan for Operation (ASHRAE 189.1-2009, 10.3.2.1.2 *Water Use Efficiency*).

2.5.2.3 Energy Efficiency

To satisfy energy efficiency requirements, the prescriptive path listed in ASHRAE Standards 189.1-2009 and 90.1-2007 is being followed. Building envelope insulation requirements are being increased. Solar hot water heating is utilized as an on-site renewable energy system. To provide "free" cooling in the building a waterside economizer shall be used.

2.5.2.3.1 Climate Zone and Weather Data

Fort Stewart is located in Climate Zone 2-A HOT-WET.

Outdoor design temperatures are derived from ASHRAE 90.1-2007:

99.6% Heating Design Temp	26 degrees F
1% DB Cooling Design Temp	93 degrees F
1% WB Cooling Design Temp	76 degrees F

The full-year weather data used for energy modeling is from the DOE-2 TMY-3 database.

2.5.2.3.2 Interior Space Temperatures

Interior design temperatures are 70 degrees F for heating and 75 degrees F for cooling. Temperature drift points are 55 degrees F and 80 degrees F.

2.5.2.3.3 Power or Plug Loads

Plug loads are assumed to be 0.75 watts per square foot, for energy analysis and modeling.

2.5.2.3.4 Electrical Power

ASHRAE 189, 7.4.5.1: The project shall contain automatic systems, such as demand limiting or load shifting, that are capable of reducing electric peak demand of the building by not less than 10% of the projected peak demand.

Feeder conductors shall be sized for a maximum voltage drop of 2% at design load.

Branch circuit conductors shall be sized for a maximum voltage drop of 3% at design load.

2.5.2.3.5 Lighting

The installed interior lighting power includes all power used by the luminaires, including lamps, ballasts, transformers, and control devices. Luminaires that are not included in the calculation are as follows: exit signs and furniture-mounted supplemental task lighting that is controlled by an automatic shut-off switch.

The luminaire wattage incorporated into the installed interior lighting is determined by the operating input wattage of the maximum lamp/auxiliary combination based on values from the auxiliary manufacturers' literature (for luminaires with permanently installed ballasts).

The interior lighting power allowance for the building is 90% of the value determined by using the "Space by Space Method" as described in ASHRAE 90.1.

The interior lighting is controlled by occupancy sensors that turn lighting off within 30 minutes of an occupant leaving a space. These automatic control devices are implemented such that lighting can be shut off in all spaces via "automatic OFF" controls. The occupancy sensors allow "manual OFF" control. In addition, all occupancy sensors allow bi-level "automatic ON" programmed to a low light level combined with multi-level circuitry and "manual ON" switching for higher light levels. Exceptions to the control strategy include the Mechanical, Electrical, and Telecomm Rooms, where the automatic shutoff of lighting could endanger the safety of building occupants.

Corridors, as a means of egress, do not exceed the 0.1 W per square foot lighting power density limit, as defined by ASHRAE 189.1-2009.

The following spaces include controls that automatically reduce lighting power in response to available daylight by a combination of stepped switching and daylight-sensing automatic controls (capable of incrementally reducing the light level in steps automatically and turning the lights off automatically): Large Interview Room, Drug Suppression Team Room, and Admin/OPS Room.

Each space enclosed by ceiling-height partitions shall have a control device that independently controls the general lighting in the space. The location of the manual control device serving each space shall be easily accessible.

Internally illuminated exit signs shall not exceed 5W per face.

Exterior lighting is controlled by a combination of a photo sensor, motion sensors, and a time switch. All time switches are capable of retaining programming and the time setting during loss of power for a period of at least ten hours. Relay shall step down the total lighting power by 50% one hour after normal business closing and turn off outdoor lighting within 30 minutes after sunrise. The photosensors are interconnected with the relay.

Luminaires that are mentioned in the previous paragraph that operate at greater than 100W contain lamps with a minimum efficacy of 60 lumens per watt.

2.5.2.3.6 Building Orientation

Preliminary energy studies of the RA 5-9 building indicate that the estimated annual energy consumption is not significantly affected by changes in the building orientation. This is a result of the relatively low solar heat gain through the vertical fenestration, due to shading from the sun shades and the limited area of glazing.

2.5.2.3.7 Thermal Envelope

The building thermal envelope meets the minimum required R-values of insulation in framing cavities and for continuous insulation (c.i.) only.

The building envelope is designed and constructed with a continuous air barrier. All air barrier components of each envelope assembly shall be clearly identified on Construction Documents and the joints, interconnections, and penetrations of the air barrier components shall be detailed.

Opaque Element	Min. R-Value/Max. U-Value	Proposed R-Value
Roof – Attic and Other	R-49	R=60
Walls, Above-Grade – Steel-Framed	R-13 + R-5.0 c.i.	R-21 + R-10 c.i.
Slab-On-Grade Floors – Unheated	F-0.730, Ins NR	
Opaque Doors – Swinging	U-0.60	

The building exterior wall assembly, roof assembly, and fenestration have specific composite STC or OITC rating requirements dependent on building location in proximity to specific noise profiles. See ASHRAE 189.1-2009, Section 8.3.3.1 for this criteria.

2.5.2.3.8 Fenestration

The proposed building includes a sunshade at each window on the East, South, and West facades of the building. These sunshades (or permanent projections) are a requirement of ASHRAE Standard 189.1 Chapter 8, when the prescriptive option is followed. The vertical fenestration area is 6% which does not exceed the limit of 40% of the gross wall area. No skylights are included in the RA 5-9 facility design.

See ASHRAE 189.1-2009, 7.4.2.9 *Fenestration Orientation* for fenestration area versus SHGC compliance for climate zone 3.

See ASHRAE 90.1-2007, 5.8 *Product Information and Installation Requirements* for insulation and fenestration labeling and testing requirements.

Fenestration Element	Max. U-Value/SHGC	Proposed U-Value/SHGC
Vertical Glazing – Nonmetal framing	U-0.45, SHGC-0.25	U-0.45, SHGC-0.25
Vertical Glazing – Metal framing (entrance door)	U-0.80, SHGC-0.25	U-0.45, SHGC-0.25

2.5.2.3.9 Infiltration

The following areas of the building envelope shall be sealed to minimize air leakage:

- Joints around fenestration and door frames
- Junctions between walls and foundations, between walls at building corners, between walls and structural floors or roofs, and between walls and roof or wall panels
- Openings at penetrations of utility services through roofs, walls, and floors
- Joints, seams, and penetrations of vapor retarders
- All other openings in the building envelope

Air leakage for fenestration and doors shall be determined in accordance with NFRC 400. Air leakage shall be determined by a laboratory accredited by a nationally recognized accreditation organization and shall be labeled and certified by the manufacturer. Air leakage shall not exceed 1.0 CFM per square foot for glazed swinging entrance doors. For roll-up doors, air leakage determined by test at standard test conditions in accordance with ANSI/DASMA 105 shall be an acceptable alternate for compliance with air leakage requirements.

Building entrances that separate conditioned space from the exterior are protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. The interior and exterior doors meet the requirement for a minimum distance of 7 feet between the two when in the closed position.

2.5.2.3.10 Roof Materials

The standing seam metal roof, at the canopies and at Vehicle Processing, shall have a Solar Reflectance Index (SRI) value of 30, which satisfies the minimum initial SRI of 29 for a *steep-sloped* roof. The SRI is to be calculated in accordance with ASTM E1980 for medium-speed wind conditions. The SRI is to be based upon solar reflectance as measured in accordance with ASTM E1918 or ASTM C1549, and thermal emittance as measured in accordance with ASTM E408 or ASTM C1371. For roofing products, the values for solar reflectance and thermal emittance shall be determined by a laboratory accredited by a nationally recognized accreditation organization, and shall be certified by the manufacturer.

2.5.2.3.11 Building Equipment

Measurement devices (smart meters) with remote communication capabilities are provided to collect energy consumption data for building electrical loads (consumption and demand), natural gas consumption, and on-site renewable thermal energy. These meters shall automatically communicate with a data acquisition system, and provide daily and hourly energy data. The data acquisition system shall be capable of storing data for a minimum of 36 months and creating user reports showing hourly, daily, monthly, and annual energy consumption.

HVAC equipment efficiencies shall comply with ASHRAE 189, 7.4.3.1.

Fan system power limitations are noted in ASHRAE 189.1, 6.5.3.

Domestic hot water equipment efficiencies are listed in ASHRAE 189, Table C-12.

Electric motors shall comply with the requirements of the Energy Policy Act where applicable, as shown in ASHRAE 189.1-2009, Table C-13. Motors not included in the scope of the Energy Policy Act of 1992 have no performance requirements in ASHRAE 90.1-2007, Section 10 *Other Equipment*.

See ASHRAE 189.1-2009, 7.4.7.3 *ENERGY STAR Equipment* for equipment requirements within the scope of applicable ENERGY STAR program.

2.5.2.3.12 Control Strategies - HVAC

The cooling system is designed to distribute cooling at the zone level, therefore, the thermostatic controls for the equipment conveying cool air is set at the zone level. The heating system is controlled at the room level.

Automatic shutdown, temperature setback control and optimum start time control shall be provided by the Energy Management and Control System (EMCS).

Ventilation outdoor air dampers automatically shut during preoccupancy building warm-up, cool down, and setback, except when ventilation reduces energy costs (e.g. night purge).

All HVAC equipment shall be monitored and/or controlled through the energy management and control system.

2.5.2.3.13 Control Strategies - Service Hot Water

Temperature controls are provided that allow for storage temperature adjustment from 120°F or lower to a maximum temperature compatible with the intended use.

The recirculation pump for the hot water system is equipped with an automatic time switch set to switch off the water heaters when the facility is unoccupied.

Temperature control means are provided to limit the maximum temperature of water delivered from lavatory faucets in the restrooms to 110 degrees F.

2.5.2.4 Renewable Energy

The RA 5-9 building shall include an on-site renewable energy system. An on-site wind generation system and an active solar water heating system shall be evaluated. The system annual output shall meet the minimum requirement of 6.0 KBtu per square foot.

2.5.3 LEED (Leadership in Energy and Environmental Design)

The RA 5-9 facility is designed to achieve LEED Silver Certification under the USGBC 2009 rating system. The Vehicle Processing Building does not meet LEED minimum requirements, so it cannot be certified. However, the building shall be designed with a sustainable approach similar to the main building.

As presented on the LEED scorecard included at the end of this section there are 76 points that may be achievable. For Silver Certification, a minimum of 50 points are required; an additional 10 points are included (a 20% contingency) in the 'Y' column of the scorecard since the project is currently at the concept design level.

The LEED credits which are being pursued include the following key items:

SS C4.2: Alternative Transportation – Bicycle Storage and Changing Room

Bicycle racks shall be located within 200 yards of building entrance with storage for 5% of building users and shower and changing facilities for 0.5% of full time equivalent occupants.

SS C4.4: Alternative Transportation – Parking Capacity

This project shall utilize Option 1 – non-residential with new parking. Preferred parking for carpools or vanpools for 5% of the total provided parking spaces.

SS C5.2: Site Development – Maximize Open Space

This project is for a military base, therefore there are no local zoning requirements in place. Option 2 shall be used in order to promote biodiversity by providing a high ratio of open space to development footprint.

SS C6.1: Stormwater Design – Quantity Control

Reduce the quantity of natural hydrology by reducing impervious cover, increasing on-site infiltration, reducing or eliminating pollution from storm water runoff and eliminating contaminants.

SS C6.2: Stormwater Design – Quality Control

The project shall include a storm water management plan to control the quality of storm water.

SS C7.1: Heat Island Effect – Non-roof

To minimize the heat island effect 50% of the site hardscape shall be selected in

SS C8: Light Pollution Reduction

Project shall reduce input power, by automatic device, for interior lighting. The project shall minimize light trespass from the building and site, reduce sky-glow, improve nighttime visibility and reduce development impact from lighting on nocturnal environments.

WE C1: Water Efficient Landscaping

Landscaping is designed to reduce the use of potable water for irrigation

WE C3: Water Use Reduction

Water conserving fixtures are used to reduce potable water use for building sewage conveyance by 50%. A rain water harvesting system is used.

EA C1: Optimize Energy Performance

To estimate building energy performance a full year energy model shall be used.

EA C2: On-site Renewable Energy

Solar collectors and a hot water storage system shall be used to provide on-site renewable energy.

EA C3: Enhanced Commissioning

Energy-related building systems shall be commissioned in accordance with LEED requirements for both Fundamental Commissioning and Enhanced Commissioning. Commissioning process activities shall be completed for the following energy-related systems:

Heating, ventilating, air conditioning, and refrigeration (HVAC) systems, both active and passive, and associated controls

Lighting and daylighting controls

Domestic hot water systems

Renewable energy systems

Building Envelope

LEED 2009 for New Construction and Major Renovations

Project Checklist

CIDC Det 5-9 - Fort Stewart, GA

22-Jun

Sustainable Sites — Possible Points: 26

Y	?	N			
Y			Prereq 1	Construction Activity Pollution Prevention	
1			Credit 1	Site Selection	1
	1		Credit 2	Development Density and Community Connectivity	5
		1	Credit 3	Brownfield Redevelopment	1
	6		Credit 4.1	Alternative Transportation—Public Transportation Access	6
1			Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
	3		Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
2			Credit 4.4	Alternative Transportation—Parking Capacity	2
1			Credit 5.1	Site Development—Protect or Restore Habitat	1
1			Credit 5.2	Site Development—Maximize Open Space	1
1			Credit 6.1	Stormwater Design—Quantity Control	1
1			Credit 6.2	Stormwater Design—Quality Control	1
1			Credit 7.1	Heat Island Effect—Non-roof	1
1			Credit 7.2	Heat Island Effect—Roof	1
1			Credit 8	Light Pollution Reduction	1

Water Efficiency — Possible Points: 10

Y			Prereq 1	Water Use Reduction—20% Reduction	
3			Credit 1	Water Efficient Landscaping	2 to 4
	2		Credit 2	Innovative Wastewater Technologies	2
3	1		Credit 3	Water Use Reduction	2 to 4

Energy and Atmosphere — Possible Points: 35

Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
8	5		Credit 1	Optimize Energy Performance	1 to 19
4			Credit 2	On-Site Renewable Energy	1 to 7
2			Credit 3	Enhanced Commissioning	2
2			Credit 4	Enhanced Refrigerant Management	2
3			Credit 5	Measurement and Verification	3
	2		Credit 6	Green Power	2

Materials and Resources — Possible Points: 14

Y			Prereq 1	Storage and Collection of Recyclables	
		3	Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
		1	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
	2		Credit 3	Materials Reuse	1 to 2

Materials and Resources, Continued

Y	?	N			
2			Credit 4	Recycled Content	1 to 2
2			Credit 5	Regional Materials	1 to 2
1			Credit 6	Rapidly Renewable Materials	1
1			Credit 7	Certified Wood	1

Indoor Environmental Quality — Possible Points: 15

Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
1			Credit 1	Outdoor Air Delivery Monitoring	1
		1	Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
1			Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems—Lighting	1
1			Credit 6.2	Controllability of Systems—Thermal Comfort	1
1			Credit 7.1	Thermal Comfort—Design	1
1			Credit 7.2	Thermal Comfort—Verification	1
		1	Credit 8.1	Daylight and Views—Daylight	1
		1	Credit 8.2	Daylight and Views—Views	1

Innovation and Design Process — Possible Points: 6

	1		Credit 1.1	Innovation in Design: Specific Title	1
	1		Credit 1.2	Innovation in Design: Specific Title	1
	1		Credit 1.3	Innovation in Design: Specific Title	1
		1	Credit 1.4	Innovation in Design: Specific Title	1
		1	Credit 1.5	Innovation in Design: Specific Title	1
1			Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

1			Credit 1.1	Regional Priority: EA C1 (31314)	1
1			Credit 1.2	Regional Priority: IEQ C7.1 (31314)	1
1			Credit 1.3	Regional Priority: SS C6.1 (31314)	1
			Credit 1.4	Regional Priority:	1

Total — Possible Points: 110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

2.6 FIRE PROTECTION

2.6.1 General

The fire protection design criteria for this facility include the current versions of the Unified Facilities Criteria 3-600-01 Fire Protection Engineering for Facilities, the International Building Code and the referenced National Fire Protection Association (NFPA) Codes and Standards.

A detailed Building Code analysis is provided on Drawing G-101. A number of assumptions were made in the completion of the Code Analysis. These assumptions include the following:

- The building shall be placed on a site with the minimum distances to the property lines (or assumed property lines) as indicated. In the event that the building is placed closer to a property line or another building than indicated in these documents, the exterior wall ratings shall need to be re-evaluated.
- An increase of 300% in allowable building area was included for automatic sprinkler protection. No allowable increase was taken for the increased access around the building.
- Based on the building size, occupancy type, and installation of automatic sprinkler protection, the allowable construction type could be any type other than Type V-B. The most cost effective construction type that does not require protected construction (i.e. fireproofing) is Type ll-B. This construction type also offers the most flexibility for possible future expansion.
- There are no special locking arrangements (no locked doors) in the means of egress.

2.6.2 Building Occupancy

The CIDC RA 5-9 building is classified as a Business Occupancy (Group B). The Vehicle Processing Building is considered a Storage Occupancy – Moderate Hazard (Group S-1 Motor Vehicle Repair Garage complying with the maximum allowable quantities of hazardous materials).

2.6.3 Fire Protection

Fire protection shall be provided by a wet pipe sprinkler system in both the Main RA 5-9 Building and the Vehicle Processing Building. The system shall meet the requirements of UFC 3-600-01 and NFPA 13: Standard for the Installation of Sprinkler Systems. All sprinklers shall be quick response type.

Based on a single story building and Light/ Ordinary Hazard occupancy, it is likely that this building shall not require a fire booster pump. However, the floor plan does include space for a fire pump in the event that the water supply cannot provide the required pressure.

2.6.4 Fire Extinguishers and Cabinets

Portable fire extinguishers are provided in accordance with NFPA 10.

2.6.5 Interior Wall and Ceiling Finishes

Wall and ceiling finishes and movable partitions shall conform to the requirements of NFPA 101.

2.6.6 Fire Alarm/ Mass Notification System

The fire alarm system shall conform to requirements of UFC 3-600-01 and NFPA 101 throughout each structure. Fire alarm system shall consist of pull stations, audio and visual devices, control/annunciation panel and tamper and/or flow connection/supervision to the sprinkler system. Installation of Fire alarm system shall be in accordance with NFPA 72.

A combined Fire Alarm/Mass Notification system shall be provided in accordance with UFC 4-021-01, Mass Notification Systems. A voice evacuation system shall be used for the audible notification appliances. The speakers used for the fire alarm voice evacuation system also serve as the audible Mass Notification System. Dual clear lens / amber lens strobe lights (clear for “Fire” and amber “Mass Notification”) shall be provided for visual notification and must be installed in accordance with NFPA 72 and ADA guidelines. A micro-phone for voice announcements (local operating console) shall be provided at the main entrance and at the side entry (most remote from the main entry).

2.7 PLUMBING

2.7.1 General

The plumbing design of the RA 5-9 CIDC building at Fort Stewart complies with Unified Facilities Criteria (UFC) documents, the ABA/ADA Accessibility Standards for Federal Facilities, LEED – NC for New Construction Reference Guide 2009, and ASHRAE 189.1-2009 Standard for the Design of High-Performance Green Buildings.

The Suspect Toilet Room shall have a wall-hung stainless steel lavatory, wall-hung stainless steel water closet, and a non-breakable mirror. Accessories within this room shall be vandal resistant design.

2.7.2 Building Water Use Reduction

Low-flow plumbing fixtures are used to maximize water efficiency. Public lavatory faucets shall have a maximum flow rate of 0.5 GPM. Dual flush water closets shall be used with an effective flush volume of 1.28 gallons; and urinals shall have a maximum flush volume of 0.5 gallons.

2.7.3 Domestic Water Heating

An active solar hot water system is utilized to satisfy the domestic hot water load. The domestic hot water demand is approximately 560 gallons per day. This equates to a maximum domestic hot water load of approximately 280,000 Btu/day. For design an assumption is made that 60% of the maximum load is considered the consumption in a typical day. This is approximately 2,168,000 Btu/day.

The solar collectors are sized for the month of January, when the solar radiation intensity is the lowest, in order to estimate solar collector area. This yields a solar collector area of about 200 ft^2. These collectors are placed on a parking cover for the parking spaces closest to the project building on the north side of the site. The parking shade is sloped to give the panels a south-facing orientation.

The solar storage tank is 250 gallons and includes a double wall heat exchanger. The solar hot water system is supplemented by a natural gas-fired condensing boiler, one of the two boilers used for space heating. This equipment is located in the Mechanical Room.

2.7.4 Vehicle Processing Building

The domestic hot water system for this facility is separate from the main building. An instantaneous natural gas fired water heater shall be the source of domestic hot water.

Plumbing items include a continuous trench drain with continuous grating at the inside of the overhead door, and an emergency eye wash and shower.

A lavatory and a water closet are not required for the Vehicle Processing Building since the path of travel to the nearest restroom facility does not exceed 500 feet.

2.7.5 Metering

Smart Meters shall be used to monitor the energy and resource use of the facility. Smart Meters capture complex energy or resource use information and transmit this information on a real-time (or near real-time) basis.

2.7.6 Water Meters

Provide metering and sub metering of water use including separate metering of potable and harvested rain water systems.

2.7.7 Natural Gas Meter and Pressure Regulator

A gas meter and pressure regulator shall be provided. The gas meter shall be a 'Smart Meter' and report to the Energy Management Control System.

2.8 HVAC SYSTEMS

2.8.1 General

The mechanical design for all CIDC facilities shall be in accordance with the current version of the Unified Facilities Criteria (UFC) documents and all applicable codes and standards, including the ABA/ADA Accessibility Standards for Federal Facilities, LEED – NC for New Construction Reference Guide 2009, and ASHRAE 189.1-2009 Standard for the Design of High-Performance Green Buildings.

2.8.2 Facility Energy Conservation Requirements

Comply with ASHRAE 189.1 Chapter 7 Energy Efficiency using either the Prescription Option Section 7.4 or the Performance Option 7.5.

Plug loads shall be included in building energy modeling but shall be subtracted in the final calculation of energy performance.

2.8.3 HVAC Systems

Ventilation rates shall meet the minimum requirements of the International Mechanical Code, and the current ASHRAE Standard 62.1. The HVAC system shall provide filtered outdoor air to all occupied spaces at air volumes that meet these minimum rates. A Demand Controlled Ventilation system shall be evaluated.

Provide permanent equipment to measure the outdoor air flow rate for each ventilation system, as required by ASHRAE 189.1

Outdoor air intake louvers or grilles shall be placed at least 10 feet above finished grade to meet the requirements of UFC 4-010-01 Minimum Antiterrorism Standards for Buildings.

Chlorofluorocarbon (CFC) based refrigerants shall not be used in HVAC and refrigeration systems.

Cooling towers shall be equipped with efficient draft eliminators in compliance with ASHRAE 189.1.

The HVAC systems shall be designed in accordance with the noise criteria (NC) ratings required for the RA 5-9 facility.

2.8.4 HVAC System Evaluations and Selection

The Baseline HVAC system, as defined by ASHRAE Standard 90.1 and used for energy modeling, is a packaged single zone constant volume system with direct expansion (DX) cooling and a fossil fuel furnace.

2.8.4.1 Proposed System 1

A HVAC system, consisting of an air-cooled chiller and interior fan coil units, shall be evaluated. The air-cooled chiller shall be located on-site; waste heat recovery from the condenser shall be evaluated as an option.

2.8.4.2 Proposed System 2

A ground-source heat pump system shall also be evaluated.

2.8.5 Space Heating

A hot water heating system shall be evaluated for space heating including perimeter radiation at Vestibules and similar spaces, and copper coils at fan-powered VAV boxes. The heating system shall also include two natural gas hot water condensing boilers and pumps, located in the Mechanical Room.

2.8.6 Energy Management and Control System (EMCS)

The EMCS shall be a complete non-proprietary direct digital control (DDC) system for monitoring and control of the heating, ventilating, and air conditioning (HVAC) systems, lighting systems, and other building systems.

The EMCS system is designed as an Open system; the system can be repaired, upgraded, and/or expanded without dependence on the original system supplier.

The EMCS monitors and controls site lighting fixtures, the main RA 5-9 Building and the Vehicle Processing Building.

2.8.7 Emergency Shut-down

An air distribution system emergency shutoff switch, as required under UFC 4-010-01, shall be provided. This emergency switch is located near the main building entrance. Shut down shall also occur upon fire alarm activation.

2.8.8 Evidence Depository

The Evidence Depository Room of the CIDC building shall be provided with a separate HVAC system in order to provide 24/7 space conditioning without operating the main HVAC systems. The separate HVAC system is also intended to contain fumes and odors within Evidence Depository.

2.8.9 Telecommunication Room

The Telecommunication Room is served by an independent and dedicated air-handling air-conditioning system. The nominal cooling capacity is 1-1/2 ton. The room shall be conditioned 24 hours per day, 7 days per week to a temperature of 72 degrees F (dry bulb) and to a relative humidity of 50%.

2.8.10 Arms Vault

The independent system for the Vault shall include a dehumidifier. The system shall be located outside of the caged area of the Vault.

2.8.11 Mechanical Room

The Mechanical Room shall be provided with a combustible gas detector and carbon monoxide detectors.

2.8.12 HVAC Systems for the Vehicle Processing Building

Ventilation rates shall meet or exceed the minimum requirements of the International Mechanical Code, and the current version of ASHRAE Standard 62.1.

Provide permanent equipment to measure the minimum outdoor air flow rate for the ventilation system, as required by ASHRAE 189.1 Exhaust rates shall be in accordance with the current edition of the International Mechanical Code and the current edition of ASHRAE Standard 62.1.

For heating, the indoor design temperature shall be 60 degrees F db. For cooling; the indoor design conditions shall be 80 degrees F db and 60% relative humidity.

The space heating system shall be an overhead natural gas fired infrared radiant heating system. For comparison, a fan coil system using a natural gas fired boiler shall be modeled.

The Vehicle Processing Building shall also have both a combustible gas detector and carbon monoxide detectors.

2.9 ELECTRICAL

2.9.1 Lighting

The interior and exterior lighting is compliant to IESNA Standards and meets ASHRAE Standards 90.1-2007 and 189.1-2009. The lighting design was done using the software AGI32 v2.21 instead of the built-in REVIT lighting calculation software. Differences between the two programs are the method of calculation. AGI32 uses the point-by-point method as supposed to the zonal cavity method used by REVIT. The zonal cavity method is less accurate because it uses a ratio to find the foot-candles as opposed to the average of all the points, used in the point-by-point method.

The lighting design for individual rooms includes a task light in order to better meet the occupier's needs. The illumination levels (measured in foot candles) achieved with general purpose lighting and task lighting are as follows:

Private Office	50fc
Lobbies, Lounges, Reception	10fc
Toilet	5fc
Corridor	5fc

Offices are provided with a recessed troffer direct fluorescent lighting system. The conceptual design analysis showed this to be the most efficient scheme. A troffer was chosen in order to meet the lighting power density ratio stipulated in ASHRAE 90.1 and 189.1. Transitional areas have recessed downlights. The Mechanical, Electrical, Telecommunication and TOE Storage Rooms shall consist of linear industrial fluorescent fixtures. The Restrooms shall feature wet location downlights to deal with the high levels of moisture in the room. Light switches and occupancy sensors shall be provided on the basis of ASHRAE 90.1 and 189.1.

The lighting for the corridors, open offices, and the exterior of the RA 5-9 Field Operations building, including site light fixtures associated with the building, shall be controlled by a digital, IP-addressable, microprocessor-based, programmable lighting control system. The system shall contain an accurate time-based astronomical digital clock, network graphical user interface, and local overrides. The exterior fixtures associated with parking areas shall contain photoelectric cells and controllers, so that the total amount of site lighting can be reduced to minimal levels during non-business hours. Lighting associated with site security shall be controlled manually and shall be kept to minimal levels.

The Observation Room lighting fixtures shall include dimming controls.

The "space-by-space" method was used for the lighting power density (LPD) calculation for the building. LPD using this method is found by determining the interior power allowance (AHSRAE 90.1- 2007, table 9.6.1). Then multiply the floor area(s) of the space(s) times the allowed LPD for the space type. The

interior lighting power allowance is the sum of the light power allowances of all spaces. Calculations can be found in the Revit model.

2.9.2 Emergency and Exit Lighting

All areas of the building shall be provided with LED emergency and exit lighting and shall comply with NFPA 101. General purpose lighting fixtures, in the path of egress, include battery packs and lamps for emergency lighting. An emergency generator is not included in this facility.

2.9.3 Electrical Power

The electrical transformer for the RA 5-9 facility shall be an 112.5kVA, 12.47kV – 480Y/277V, liquid-filled pad mount transformer. A 480Y/277V – 3P, 4W secondary service shall be run underground from the transformer to the main distribution panel located in the Main Electrical Room, utilizing one(1) set of four (4) #2/0 AWG plus one (1) #6 AWG 600V 90°C copper conductor in EB Type-20 concrete encased ductbank. The primary service to the transformer shall be one(1) set of #2 AWG 15-kV 133% EPR copper conductor with one (1) 100% ground. Primary protection for the transformer shall be provided in accordance with the National Electrical Code (NEC). The size of the service transformer estimate was based on the requirement of UFC 3-501-01 3-2.3.1. This requirement states that "For building design no service transformer can exceed 12VA/ft²". However, since the calculated size was 127-kVA, the closest commercially available size of 112.5kVA was chosen

Power distribution for the facility shall emanate from the building's Main Electrical Room. Surge suppression shall be provided for the 480Y/277V main electrical service and the main 208Y/120V panel. 480Y/277V power shall be provided for lighting and large mechanical loads. It is anticipated that there shall be one (1) 250A main service panel, with a 175A main circuit breaker, plus one (1) 100A MLO panel for lighting and one (1) 480Y/277V-3P, 4W, 225A MLO panels for mechanical loads. From the 480Y/277V, the power shall be transformed down to 208Y/120V for general convenience power receptacles and small mechanical loads via a 45kVA k-rated transformer (k-4). It is estimated that there shall be one (1) 208Y/120V-3P, 4W, 150A MCB MDP panel. There shall be a separate 208Y/120V-40A MCB panel for the vehicle processing building. The Telecommunication Room shall receive one (1) 208Y/120V-100A MLO panel and there shall be one (1) 208Y/120V-100A MLO panel for general receptacle loads. 600V 90°C copper feeders for sub-panels shall be provided as required.

The facility shall contain one (1) 208Y/120V-3P, 60A twist-lock water-proof receptacle, one (1) 208Y/120V-3P manual transfer switch, and one (1) 208Y/120V-3P 60A main circuit breaker panel for the estimated mission essential power requirements. Mission essential power shall be provided by a portable electrical generator, which shall be rented or leased. This portable generator is a future item and is intended for, per the program requirements, the mission essential power and not for any life safety systems. It is estimated that mission essential load is about 15-kW. CIDC requires one refrigerator and one freezer to be included with this mission essential power system.

2.9.4 Grounding

The building structure shall be grounded in accordance with UFC requirements. A complete copper grounding system shall be provided. A ground ring shall be installed, connected to the building structure at each steel column. Neutrals of the electrical distribution system shall be bonded at the main distribution panels.

The Vehicle Processing Building shall have a separate grounding system.

2.9.5 Lighting and Electrical Power for Vehicle Processing Building

Lighting fixtures for the Vehicle Processing Building shall include overhead and wall mounted fixtures, in order to illuminate the sides and underside of vehicles when on the lift.

The Vehicle Processing Building shall have a separate electrical distribution panel, fed from the main distribution panel. This panel provides power to lighting fixtures, receptacles, special items, and mechanical equipment. The panel shall be recessed mounted on the interior of the building and shall contain a main circuit breaker.

2.10 COMMUNICATIONS AND SECURITY SYSTEMS

2.10.1 Information Systems

Information systems shall consist of a complete end-to-end voice, data cable based functional design accomplished in accordance with the I3A Technical Criteria. Information system equipment provided to satisfy the service requirements of this facility shall meet the technical specifications and planning guidance found in ANSI/TIA/EIA-568-B and 569-A, as appropriate.

System provisions shall be compliant with the requirements of the Department of Defense (DoD) ABA/ADA Standards for accessibility.

Metallic separation is provided between telecommunication and power wiring in power poles, under floor conduit systems, and systems furniture raceways.

2.10.2 Telecommunications Systems

Telephone and data communications for the facility shall be distributed throughout the building from the Telecomm Room. Punch down blocks, Cat-6 4-pair cable, 50 µm multimode fiber optic cable, and telephone jacks shall be provided for the horizontal distribution as part of this project. For data communication, patch panels, Cat-6 4-pair cable and data jacks shall be provided. All cables shall be numbered by room and jack for both telephone and jack. Data cables shall be color-coded. Two (2) 8P8C, 568B type, shall be used for voice and data with appropriate label. Fiber optic adapters and connectors shall be TIA/EIA “SC” type (568SC). CATV and CCTV connections shall be provided through 75 ohm coaxial cable.

2.10.3 Data System

Data jacks shall be terminated on Category 6 110 RJ-45 termination panels located on racks in the Telecomm Room.

2.10.4 Telecommunication Requirements for Vehicle Processing Building

The system design includes two phone and two data lines, routed from the Main Building underground to the Vehicle Processing Building.

2.10.5 Information System Equipment

All equipment provided for the facility shall meet the functional standards found in the I3A Technical Criteria. The building's interior copper cabling shall be EIA/TIA 568B.

2.10.6 Protected Distribution System (PDS) Infrastructure

The PDS is designed and shall be installed in accordance with the I3A Technical Criteria. All PDS cable distribution and telecommunications systems comply with the I3A Technical Criteria (for design and allocations) and with the latest versions of ANSI/TIA/EIA 568B (for technical implementation).

The installation shall follow the requirements of ANSI/TIA/EIA-569-A for telecommunications paths and Equipment Room spaces. Provide dedicated PDS raceway space and Equipment Room space for the purpose of future fiber optic cable installation to each outlet location initially served only by copper

cable(s). Provide space for future data and communication cabling. Provide I3A standard dual-jack voice/data outlets throughout core areas and the supply/administration areas; use I3A functional area outlet-densities to determine the outlet quantities. Provide data outlets for all planned computer equipped desktops. Use of multiple-jack outlets to serve desktop locations, (i.e., up to four 8P8C RJ-45 type jacks) is typical.

2.10.7 Paging Systems

A zoned paging system shall be provided throughout the main RA 5-9 Building and the Vehicle Processing Building, and integrated with the telephone system. The system shall allow paging to individual rooms and to all building areas. Select outdoor spaces shall be on the public area system.

2.10.8 Audio/ Visual System

Audio/Visual systems are designed and shall be installed to comply with I3A Technical Criteria and the program requirements. Provisions (consisting of a power receptacle and conduit for signal wiring) for a GFGI projector shall be provided in each Conference Room. CATV shall be provided in Conference Rooms. The cable television system shall consist of cabling, pathways, and outlets.

RA 5-9 building CATV systems shall conform to applicable criteria including I3A Technical Criteria and UFC 3-580-01 Telecommunications Building Cabling Systems Planning/Design. A camera and microphone for audio/video recording shall be provided at each Interview Room.

2.10.9 Electronic Security System (ESS)

The security infrastructure shall be designed and installed to support Government-furnished equipment including ICIDS systems, CCTV surveillance systems, and restricted access systems. Provisions shall include dedicated power circuits, communications connections, raceways, and signal wiring for user installed devices.

Design of security systems shall also be coordinated with the Mandatory Center of Expertise (MCX) Electronic Security Center, U.S. Army Installation Support Center, Huntsville, Alabama.

All unclassified telecommunications systems and associated infrastructure shall be electrically and physically isolated from all classified telecommunications systems in accordance with NSTISSAM requirements. TEMPEST requirements shall be met on a per site basis dependent on the facility zone type and the equipment NSTISSAM level.

An alarm and closed circuit television (CCTV) system shall be provided. An alarm shall be placed at each exterior door and CCTV cameras shall be installed in corridors and at building entrances.

2.10.10 Security Locks

Security locks are required for Arms Vault and the Evidence Processing, Evidence Custodian and Evidence Depository Rooms.

2.10.11 Clock System

Clocks shall be provided in Conference Rooms and in Visitor Waiting Areas.

2.10.12 Mass Notification System

Provide a mass notification system conforming to UFC 4-010-01 and UFC 4-021-01 for the purpose of providing real-time announcements in the immediate vicinity of the building during emergency situations. Coordinate specific system requirements with the user and the Installation.

The mass notification control panel shall be located in the office of the Duty Agent.

See section 2.6 FIRE PROTECTION

End of Section

APPENDIX A

PROJECT TRACKING SHEET

Facility Type Compliance Documentation:

PROJECT TRACKING SHEET

Item	Component	Min. Requirements	Proposed/Designed to
Project ID	Category Code	14114	
	Building Code used and year		N/A
	Facility Type (i.e. 1300 PP, DFAC, 1300 Trainee)	Criminal Investigation Command Field Operations Building RA 5-9 Ft Stewart, GA	N/A
	Building Gross Area	9475 f²	
	Design/Construction Method (i.e. Design-Build, Design-Bid-Build, Adapt-Build, Unique)	Adapt-Build	N/A
	Number of building stories	1	N/A
1. Roof	Insulation (R-Value)	R-49	R-60
	Surface reflectance	Note 1	
2. Walls	Insulation (R-Value)	R-13 + R-5 ci	R-21 + R-10 ci
3. Floors	Insulation (R-Value)	NR	
4. Doors	Assembly (U-Value)	U-0.600	
5. Infiltration	Bldg Envelope Air Leakage	Note 1	
6. Vertical Glazing	Window to Gross Wall (Percentage)	40%	≈5.4%
	Thermal transmittance	U-0.450	
	Solar heat gain coefficient	SHGC-0.25	
7. Interior Lighting	Lighting Power Density	LPD-0.9	
	Ballast Type	Electronic	
8. HVAC	Air Conditioning (Cooling)	See Mechanical Design Narrative	
	Heating		
9. Renewable Energy		See Energy Narrative	
10. Energy Model	Energy Analysis Tools	TRACE 700	
11. Outdoor Design Temperatures	Dry-bulb and Wet-bulb Temperatures	99.6% - 26°F 1% DB - 93°F 1% WB - 76°F	
12. Indoor Design Temperatures	Dry-bulb and Wet-bulb Temperatures	H - 70°F DB H – 58.5°F WB C - 75°F DB C – 62.5°F SB	
13. Climatic Zone		3A	
14. Building Energy Density	kBTU/SQFT*year	Approx 40 kBTU/SQFT*year	

Item	Component	Min. Requirements	Proposed/Designed to
15. Peak Energy Usage Electrical Gas Other	KWh		
16. Annual Energy Usage Electrical Gas Other	KWh		
17. Tons of Annual Carbon Emission	Tons		
18. LEED Version and Rating	LEED v3.0 LEED Silver	50 points	60 points
19. LEED credits earned, with percentage in Water and Energy- Gross percentage of anticipated energy savings versus baseline- Gross percentage of anticipated water savings versus baseline-			

Notes:

1. List applicable criteria, minimum requirements, and actual provided requirements.
2. Provide detailed design narrative of system and approach to meeting energy and sustainable goals in design analysis, including all energy consuming equipment, components, and energy reduction features utilized to meet energy reduction goals. On tracking sheet provide Tons of Cooling and MBH of heating. Provide energy reduction due to use of renewable energy.
3. Provide values based on applicable criteria
4. Provide two baseline values for minimum as determined by EPACT 2005 and ASHREA 90.1 calculation methodologies. Proposed column shall reflect design values proposed.
5. Energy Analysis is to be performed using Trane Trace 700. All associated Trace data files ".TRC" files are to be provided on CD or DVD. Trane trace has an archive feature by which files can be bundled and restored for use by other's review and use. Other energy analysis programs are not acceptable.

APPENDIX B

ARCHITECTURAL CALCULATIONS

CORRECTED FINAL SUBMISSION
12 SEPTEMBER 2012

PARSONS BRINCKERHOFF
COMPUTATION SHEET

Subject: ENVELOPE U-FACTORS - RA 5-9 (Ft. Stewart)

Made by: JPB
Date: 01/30/12
Checked by:
Date:

ROOF

1. 4" Soil
2. Filter Membrane
3. 4" Gravel
4. Waterproof Membrane
5. 1/2" Cement Board
6. 2" Polyiso
7. Vapor Control Layer
8. 4" Concrete
9. 9-1/2" Batt Insulation
10. 9-1/2" Batt Insulation

$R_1 := 0.33$ $R_6 := 10$

$R_2 := 0$ $R_7 := 0$

$R_3 := 0.4$ $R_8 := 3.2$

$R_4 := 0$ $R_9 := 30$

$R_5 := 0.4$ $R_{10} := 30$

Assumptions

The vegetative roof system will be classified as "Attic and Other" according to ASHRAE 189.1-2009.

Credit is not taken for "polyiso" above deck to satisfy minimum insulation requirements.

$$U := \frac{1}{R_1 + R_2 + R_3 + R_4 + R_5 + R_6 + R_7 + R_8 + R_9 + R_{10}}$$

$U = 0.013$

WALL

1. Exterior Air Film
2. 4" Brick
3. 1-1/2" Airspace
4. 2" Polyiso
5. 1/2" Gyp Sheathing
6. 6" Batt Insulation
7. 5/8" Gyp Board
8. Interior Air Film

$R_1 := 0.17$ $R_5 := 0.3$

$R_2 := 0.75$ $R_6 := 21$

$R_3 := 2$ $R_7 := 0.56$

$R_4 := 10$ $R_8 := 0.68$

$$U := \frac{1}{R_1 + R_2 + R_3 + R_4 + R_5 + R_6 + R_7 + R_8}$$

$U = 0.028$

FLOOR

1. Concrete Slab on Grade
2. Insulation - NR

PARSONS BRINCKERHOFF
COMPUTATION SHEET

Subject: ENVELOPE U-FACTORS - RA 5-9 Vehicle Processing

Made by: JPB
Date: 01/30/12
Checked by:
Date:

ROOF

1. Exterior Air Film
2. Standing Seam Metal Roof
3. EPDM
4. 3" Insulation
5. Metal Deck
6. Interior Air Film

$R_1 := 0.17$ $R_5 := 0$
$R_2 := 0$ $R_6 := 0.61$
$R_3 := 0$
$R_4 := 15$

$$U := \frac{1}{R_1 + R_2 + R_3 + R_4 + R_5 + R_6}$$

$U = 0.063$

WALL

1. Exterior Air Film
2. 4" Brick
3. 2" Airspace
4. 2" Polyiso
5. 8" CMU
6. 4" Insulation
7. 5/8" Gyp Board
8. Interior Air Film

$R_1 := 0.17$ $R_5 := 1.11$
$R_2 := 0.75$ $R_6 := 14$
$R_3 := 2$ $R_7 := 0.56$
$R_4 := 10$ $R_8 := 0.68$

$$U := \frac{1}{R_1 + R_2 + R_3 + R_4 + R_5 + R_6 + R_7 + R_8}$$

$U = 0.034$

FLOOR

1. Concrete Slab on Grade
2. Insulation - NR

ROOM DATA				OCCUPANCY DATA		
NUMBER	NAME	AREA	VOLUME	TYPE	LOAD FACTOR	LOAD TOTAL
001	ENTRY VESTIBULE	79 SF	708 CF	NA		
002	VESTIBULE WEST	67 SF	605 CF	NA		
003	VESTIBULE NORTH	78 SF	702 CF	NA		
101	VISITOR WAITING AREA	236 SF	2121 CF	A-3	15	16
102	CORRIDOR	131 SF	1176 CF	NA		
103	MEN	145 SF	1308 CF	B	100	2
104	WOMEN	147 SF	1322 CF	B	100	2
105	CORRIDOR	317 SF	2851 CF	NA		
106	MULTI-PURPOSE LOUNGE	556 SF	5007 CF	A-3	15	38
107	SPECIAL AGENT IN CHARGE OFFICE	192 SF	1731 CF	B	100	2
108	LARGE INTERVIEW ROOM	231 SF	2080 CF	B	100	3
109	SMALL INTERVIEW ROOM #2	144 SF	1295 CF	B	100	2
110	SMALL INTERVIEW ROOM #1	139 SF	1248 CF	B	100	2
111	PHOTO ID ROOM	125 SF	1127 CF	B	100	2
112	POLYGRAPH OFFICE	110 SF	990 CF	B	100	2
113	POLYGRAPH EXAM ROOM	116 SF	1043 CF	B	100	2
114	OBSERVATION ROOM	120 SF	1078 CF	B	100	2
115	SUSPECT WAITING ROOM	150 SF	1349 CF	B	100	2
116	SUSPECT TOILET	65 SF	584 CF	B	100	1
117	CORRIDOR	522 SF	4694 CF	NA		
118	EVIDENCE CUSTODIAN OFFICE	166 SF	1496 CF	B	100	2
119	EVIDENCE DEPOSITORY ROOM	423 SF	3811 CF	S	300	2
120	EVIDENCE PROCESSING ROOM	160 SF	1437 CF	B	100	2
121	DUTY AGENT OFFICE	166 SF	1496 CF	B	100	2
122	TABLE OF ORGANIZATION AND EQUIPMENT STORAGE	505 SF	7075 CF	S	300	2
123	ARMS VAULT	80 SF	721 CF	S	300	1
124	TELECOM ROOM	156 SF	1407 CF	B	100	2
125	ELECTRICAL ROOM	140 SF	1962 CF	M/E	300	1
126	MECHANICAL ROOM	404 SF	5654 CF	M/E	300	2
127	CORRIDOR	673 SF	6059 CF	NA		
128	RESIDENT AGENT CRIMINAL INTELLIGENCE CENTER OFFICE	157 SF	1411 CF	B	100	2
129	TEAM CHIEF OFFICE	152 SF	1365 CF	B	100	2
130	INVESTIGATIVE OPS TECH OFFICE	138 SF	1240 CF	B	100	2
131	DRUG SUPPRESSION TEAM OFFICE	151 SF	1360 CF	B	100	2
132	SPECIAL AGENTS OFFICE	158 SF	1424 CF	B	100	2
133	SPECIAL AGENTS OFFICE	310 SF	2793 CF	B	100	4
134	RECYCLE CLOSET	84 SF	753 CF	S	300	1
135	ADMINISTRATIVE/ OPERATIONS ROOM	514 SF	4630 CF	B	100	6
136	SHOWER	116 SF	1040 CF	B	100	2
137	JANITOR	40 SF	358 CF	NA		
		8363 SF	80511 CF			115

PARSONS BRINCKERHOFF
COMPUTATION SHEET

Prepared by: JPB
Date: 1/30/2011

SUBJECT: Minimum Plumbing Fixture Requirements per IPC 2009

				WATER CLOSETS		LAVATORIES				
PROJECT BUILDING	CLASS	OCCUPANCY TYPE	NO. OF PEOPLE	MALE	FEMALE	MALE	FEMALE	SHOWERS	DRINKING FOUNTAINS	OTHER
RA 5-9	Business	B	11	1		1	1	-	-	1 service sink
RA 10-15	Business	B	19	1	1	1	1	-	1	1 service sink
Detachment 24	Business	B	30	1	1	1	1	-	1	1 service sink
Battalion HQ	Business	B	50 + 50 transient	2	2	2	2	-	1	1 service sink
Vehicle Processing	Storage	S-1	2	1		1		See Section 411 of IPC	-	1 service sink

NOTE: Separate facilites are not required for structures with a total occupant load of 15 or less. This applies to the RA 5-9. This also applies to drinking fountain requirements.

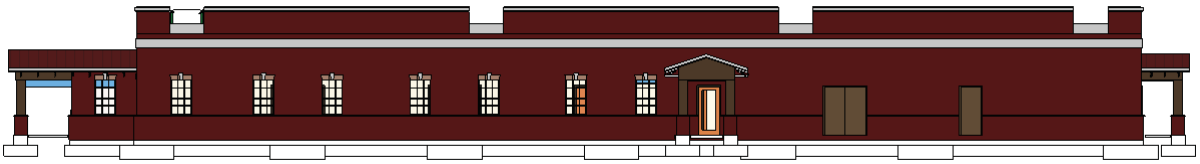
APPENDIX C

STRUCTURAL CALCULATIONS

CORRECTED FINAL SUBMISSION
12 SEPTEMBER 2012

CIC – RA 5-9

Ft. Stewart, Georgia



Structural Calculations for
30% Design Development
24-Apr-2012

Prepared for ACOE By:

PARSONS BRINCKERHOFF

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Table of Contents

Code Search

CIC – RA 5-9; Ft. Stewart, Georgia

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JOB TITLE	CIC Detachment 5-9 Building		
JOB NO.	173133C	**SHEET NO.**	
CALCULATED BY	T.Corwith	**DATE**	5/2/12
CHECKED BY		**DATE**	

STRUCTURAL CALCULATIONS

FOR

CIC Detachment 5-9 Building

Ft. Stewart, GA

Parsons Brinckerhoff
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JOB TITLE	CIC Detachment 5-9 Building		
JOB NO.	173133C	**SHEET NO.**	
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Code Search

I. Code: International Building Code 2006

II. Occupancy:

Occupancy Group = B Business

III. Type of Construction:

Fire Rating:
Roof = 0.0 hr
Floor = 0.0 hr

IV. Live Loads:

Roof angle (θ) 0.00 / 12 0.0 deg

Roof 0 to 200 sf: 20 psf
200 to 600 sf: 24 - 0.02Area, but not less than 12 psf
over 600 sf: 12 psf

Floor	100 psf
Stairs & Exitways	100 psf
Balcony / Deck	100 psf
Mechanical	125 psf
Partitions	N/A

V. Wind Loads : ASCE 7 - 05

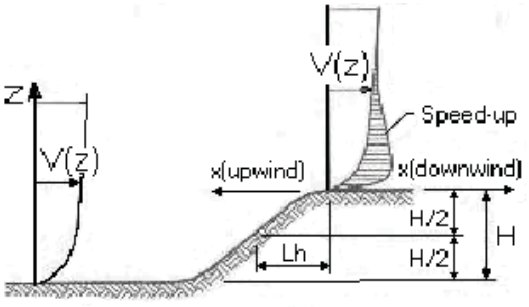
Importance Factor	1.00
Basic Wind speed	110 mph
Directionality (Kd)	0.85
Mean Roof Ht (h)	18.0 ft
Parapet ht above grd	0.0 ft
Minimum parapet ht	0.0 ft
Exposure Category	C
Enclosure Classif.	Enclosed Building
Internal pressure	+/-0.18
Type of roof	Hip
Building length (L)	161.7 ft
Least width (B)	61.3 ft
Kh case 1	0.882
Kh case 2	0.882

Topographic Factor (Kzt)

Topography	Flat	
Hill Height (H)	0.0 ft	H< 15ft;exp C
Half Hill Length (Lh)	0.0 ft	∴ Kzt=1.0
Actual H/Lh =	0.00	
Use H/Lh =	0.00	
Modified Lh =	0.0 ft	
From top of crest: x=	0.0 ft	
Bldg up/down wind?	downwind	

H/Lh= 0.00	K_1 =	0.000
x/Lh = 0.00	K_2 =	0.000
z/Lh = 0.00	K_3 =	1.000

At Mean Roof Ht:
Kzt = $(1+K_1K_2K_3)^2$ = 1.000



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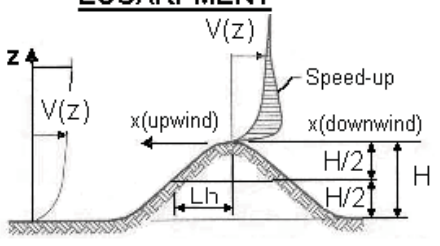

2D RIDGE or 3D AXISYMMETRICAL HILL

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V. Wind Loads - cont.:

Gust Effect Factor

Flexible structure if natural frequency < 1 Hz (T > 1 second).
However, rule of thumb if building is if h/B < 4 then rigid structure.

h =	18.0 ft
use this h :	18.0 ft
B =	61.3 ft
Calculated /z =	15.0 ft
Use this /z :	15.0 ft

h/B = 0.29 Therefore, probably rigid structure

G = 0.85 Using rigid structure default

Rigid Structure

/ε =	0.20	
l =	500 ft	
z_{min} =	15 ft	
c =	0.20	
g_Q, g_v =	3.4	
L_z =	427.1 ft	
Q =	0.91	
I_z =	0.23	
G =	0.88	use G = 0.85

Flexible or Dynamically Sensitive Structure

Natural Frequency (n_1) =	0.0 Hz			
Damping ratio (β) =	0			
/b =	0.65			
/α =	0.15			
Vz =	92.9			
N_1 =	0.00			
R_n =	0.000			
R_h =	28.282	η =	0.000	h = 18.0 ft
R_B =	28.282	η =	0.000	
R_L =	28.282	η =	0.000	
g_R =	0.000			
R =	0.000			
G =	0.000			

Enclosure Classification

Test for Enclosed Building: A building that does not qualify as open or partially enclosed.

Test for Open Building: All walls are at least 80% open.
Ao ≥ 0.8Ag

Test for Partially Enclosed Building:

	Input		Test
Ao	0.0 sf	Ao ≥ 1.1Aoi	YES
Ag	0.0 sf	Ao > 4' / 0.01Ag	NO
Aoi	0.0 sf	Aoi / Agi ≤ 0.20	NO
Agi	0.0 sf		

Building is NOT Partially Enclosed.

Conditions to qualify as Partially Enclosed Building. Must satisfy all of the following:
Ao >= 1.1Aoi
Ao > smaller of 4' or 0.01 Ag
Aoi / Agi <= 0.20
Where:
Ao = the total area of openings in a wall that receives positive external pressure.
Ag = the gross area of that wall in which Ao is identified.
Aoi = the sum of the areas of openings in the building envelope (walls and roof) not including Ao.
Agi = the sum of the gross surface areas of the building envelope (walls and roof) not including Ag.

Reduction Factor for large volume partially enclosed buildings (Ri):

If the partially enclosed building contains a single room that is unpartitioned , the internal pressure coefficient may be multiplied by the reduction factor Ri.

Total area of all wall & roof openings (Aog):		0 sf
Unpartitioned internal volume (Vi) :		0 cf
	Ri =	1.00

Altitude adjustment to constant 0.00256 :

Altitude =	0 feet	Average Air Density =	0.0765 lbm/ft^3
Constant =	0.00256		

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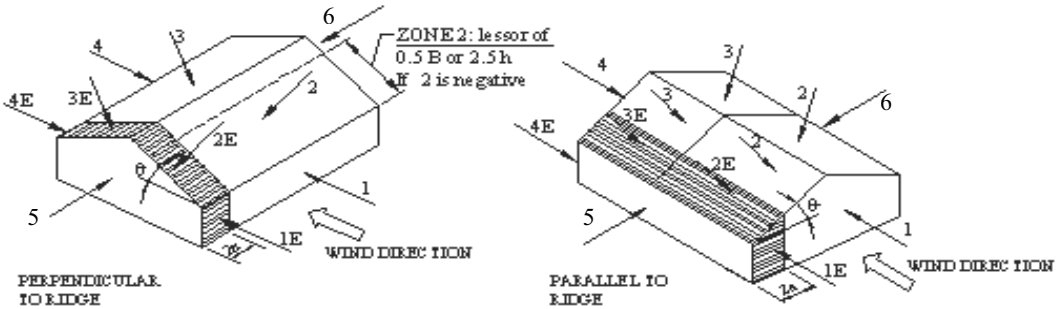
V. Wind Loads - MWFRS h≤60' (Low-rise Buildings) Enclosed/partially enclosed only



Torsional loads are 25% of zones 1 - 4. See code for loading diagram

Transverse Direction

Kz = Kh (case 1) = 0.88
Base pressure (qh) = **23.2 psf**
GCpi = +/-0.18

Longitudinal Direction

Edge Strip (a) 6.1 ft
End Zone (2a) 12.3 ft
Zone 2 length = 30.7 ft

	Transverse Direction			Longitudinal Direction			
	Perpendicular θ = 0.0 deg			Parallel θ = 0.0 deg			
Surface	GCpf	w/-GCpi	w/+GCpi	GCpf	w/-GCpi	w/+GCpi	
1	0.40	0.58	0.22	0.40	0.58	0.22	
2	-0.69	-0.51	-0.87	-0.69	-0.51	-0.87	
3	-0.37	-0.19	-0.55	-0.37	-0.19	-0.55	
4	-0.29	-0.11	-0.47	-0.29	-0.11	-0.47	
5	-0.45	-0.27	-0.63	-0.45	-0.27	-0.63	
6	-0.45	-0.27	-0.63	-0.45	-0.27	-0.63	
1E	0.61	0.79	0.43	0.61	0.79	0.43	
2E	-1.07	-0.89	-1.25	-1.07	-0.89	-1.25	
3E	-0.53	-0.35	-0.71	-0.53	-0.35	-0.71	
4E	-0.43	-0.25	-0.61	-0.43	-0.25	-0.61	

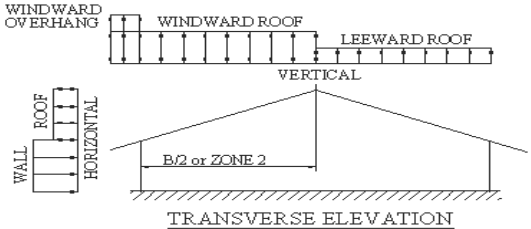
Wind Surface pressures (psf)

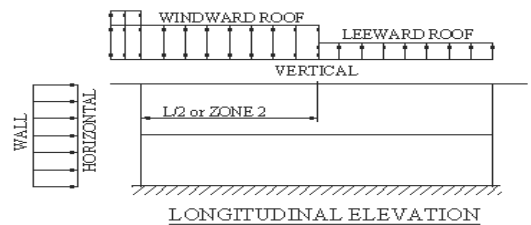
1	13.5	5.1	13.5	5.1	
2	-11.8	-20.2	-11.8	-20.2	
3	-4.4	-12.8	-4.4	-12.8	
4	-2.6	-10.9	-2.6	-10.9	
5	-6.3	-14.6	-6.3	-14.6	
6	-6.3	-14.6	-6.3	-14.6	
1E	18.3	10.0	18.3	10.0	
2E	-20.7	-29.0	-20.7	-29.0	
3E	-8.1	-16.5	-8.1	-16.5	
4E	-5.8	-14.2	-5.8	-14.2	

Windward roof overhangs: 15.8 psf (upward) add to windward roof pressure

Parapet

Windward parapet: 0.0 psf (GCpn = +1.5)
Leeward parapet: 0.0 psf (GCpn = -1.0)





Horizontal MWFRS Simple Diaphragm Pressures (psf)

Transverse direction (normal to L)

Interior Zone: Wall 16.0 psf
Roof -7.4 psf
End Zone: Wall 24.2 psf
Roof -12.5 psf

Longitudinal direction (parallel to L)

Interior Zone: Wall 16.0 psf
End Zone: Wall 24.2 psf

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JOB TITLE CIC Detachment 5-9 Building

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V. Wind Loads - MWFRS all h (Enclosed/partially enclosed only)

Kh (case 2) =	0.88		h =	18.0 ft	GCpi =	+/-0.18
Base pressure (q_h) =	**23.2 psf**		ridge ht =	18.0 ft	G =	0.85
Roof Angle =	0.0 deg		L =	161.7 ft	qi = qh	
Roof tributary area - (h/2)*L:		1455 sf	B =	61.3 ft		
(h/2)*B:		552 sf				

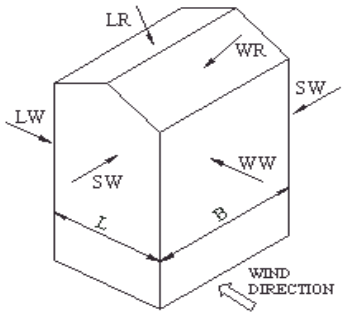
Surface Pressures (psf) / Surface	Wind Normal to Ridge (psf) B/L = 0.38 Cp	q_hGC_p	h/L = 0.29 w/+q_iGC_{pi}	w/-q_hGC_{pi}	Wind Parallel to Ridge (psf) Dist.*	L/B = 2.64 Cp	q_hGC_p	h/L = 0.11 w/ +q_iGC_{pi}	w/ -q_hGC_{pi}
Windward Wall (WW)	0.80	15.8	see table below			0.80	15.8	see table below	
Leeward Wall (LW)	-0.50	-9.9	-14.1	-5.7		-0.27	-5.3	-9.5	-1.1
Side Wall (SW)	-0.70	-13.8	-18.0	-9.6		-0.70	-13.8	-18.0	-9.6
Leeward Roof (LR)		**				Included in windward roof			
Windward Roof: 0 to h/2*	-0.90	-17.8	-21.9	-13.6	0 to h/2*	-0.90	-17.8	-21.9	-13.6
h/2 to h*	-0.90	-17.8	-21.9	-13.6	h/2 to h*	-0.90	-17.8	-21.9	-13.6
h to 2h*	-0.50	-9.87	-14.05	-5.69	h to 2h*	-0.50	-9.9	-14.1	-5.7
> 2h*	-0.30	-5.92	-10.10	-1.74	> 2h*	-0.30	-5.9	-10.1	-1.7

**Roof angle < 10 degrees. Therefore, leeward roof is included in windward roof pressure zones.

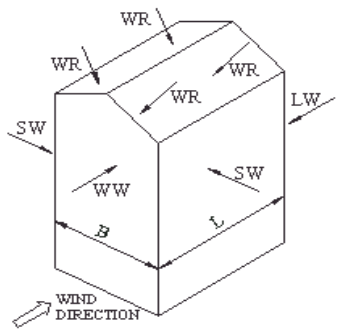
*Horizontal distance from windward edge

Windward Wall Pressures at "z" (psf)

	z	Kz	Kzt	Windward Wall q_zGC_p	w/+q_iGC_{pi}	w/-q_hGC_{pi}	Combined WW + LW Normal to Ridge	Parallel to Ridge
	0 to 15'	0.85	1.00	15.2 psf	11.0 psf	19.4 psf	25.1 psf	20.5 psf
h=	18.0 ft	0.88	1.00	15.8	11.6	20.0	25.7	21.1



WIND NORMAL TO RIDGE



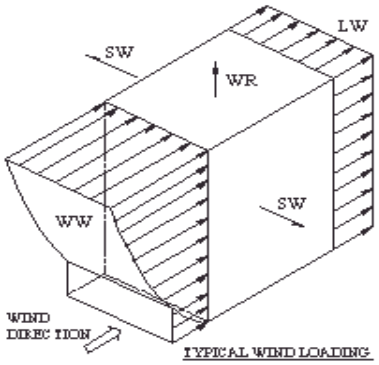
WIND PARALLEL TO RIDGE

NOTE:
See figure 6-9 of ASCE7 for the application of full and partial loading of the above wind pressures. There are 4 different loading cases.

Parapet

z	Kz	Kzt	qp (psf)
0.0 ft	0.85	1.00	0.0

Windward parapet: 0.0 psf (GCpn = +1.5)
Leeward parapet: 0.0 psf (GCpn = -1.0)



TYPICAL WIND LOADING

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V. Wind Loads - Components & Cladding: Buildings h≤60' & Alternate design 60'<h<90'

Kz = Kh (case 1) = 0.88 GCpi = +/-0.18 NOTE: If tributary area is greater than
Base pressure (qh) = **23.2 psf** a = 6.1 ft 700sf, MWFRS pressure may be used.
Roof Angle = 0.0 deg

Type of roof = Hip

Code doesn't provide data for hip roofs with angles <=7 deg or > 27 deg. Gable values shown.

Roof	GCp +/- GCpi			Surface Pressure (psf)			**User input**	
Area	10 sf	50 sf	100 sf	10 sf	50 sf	100 sf	20 sf	250 sf
Negative Zone 1	-1.18	-1.11	-1.08	-27.4 psf	-25.8 psf	-25.1 psf	-26.7 psf	-25.1 psf
Negative Zone 2	-1.98	-1.49	-1.28	-46.0 psf	-34.6 psf	-29.7 psf	-41.1 psf	-29.7 psf
Negative Zone 3	-2.98	-1.79	-1.28	-69.2 psf	-41.6 psf	-29.7 psf	-57.3 psf	-29.7 psf
Positive All Zones	0.48	0.41	0.38	11.1 psf	10.0 psf	10.0 psf	10.4 psf	10.0 psf
Overhang Zone 1&2	-1.70	-1.63	-1.60	-39.5 psf	-37.9 psf	-37.2 psf	-38.8 psf	-37.2 psf
Overhang Zone 3	-2.80	-1.40	-0.80	-65.0 psf	-32.6 psf	-18.6 psf	-51.0 psf	-18.6 psf

Walls	GCp +/- GCpi			Surface Pressure (psf)			**User input**	
Area	10 sf	100 sf	500 sf	10 sf	100 sf	500 sf	50 sf	200 sf
Negative Zone 4	-1.17	-1.01	-0.90	-27.2 psf	-23.5 psf	-20.9 psf	-24.6 psf	-22.4 psf
Negative Zone 5	-1.44	-1.12	-0.90	-33.4 psf	-26.1 psf	-20.9 psf	-28.3 psf	-23.8 psf
Positive Zone 4 & 5	1.08	0.92	0.81	25.1 psf	21.4 psf	18.8 psf	22.5 psf	20.3 psf

Note: GCp reduced by 10% due to roof angle <= 10 deg.

Parapet

qp = 0.0 psf

CASE A = pressure towards building
CASE B = pressure away from building

	Surface Pressure (psf)			**User input**
Solid Parapet Pressure	10 sf	100 sf	500 sf	40 sf
CASE A : Interior zone :	0.0 psf	0.0 psf	0.0 psf	0.0 psf
Corner zone :	0.0 psf	0.0 psf	0.0 psf	0.0 psf
CASE B : Interior zone :	0.0 psf	0.0 psf	0.0 psf	0.0 psf
Corner zone :	0.0 psf	0.0 psf	0.0 psf	0.0 psf

Rooftop Structures & Equipment

Dist from mean roof height to centroid of Af = 0.0 ft Gust Effect Factor (G) = 0.85
Height of equipment (he) = 0.0 ft Base pressure (qz) = **27.3 Kd** psf

Cross-Section Square
Directionality (Kd) 0.90

Width (D) 10.0 ft h/D = 0.00
Type of Surface N/A

Square (wind along diagonal)

Cf = 1.00
Af = 10.0 sf
Adjustment Factor (Adj) = 1.90
F = qz G Cf Af Adj= **39.7 Af**
F = 397 lbs

Square (wind normal to face)

C_f = 1.30
A_f = 10.0 sf
Adjustment Factor (Adj) = 1.900
F = q_z G C_f A_f Adj= **51.6 Af**
F = 516 lbs

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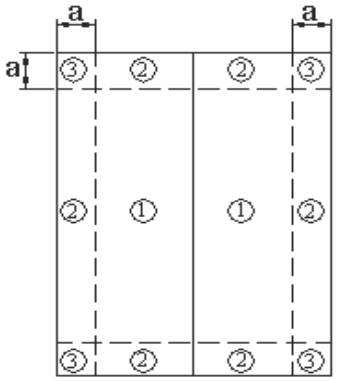
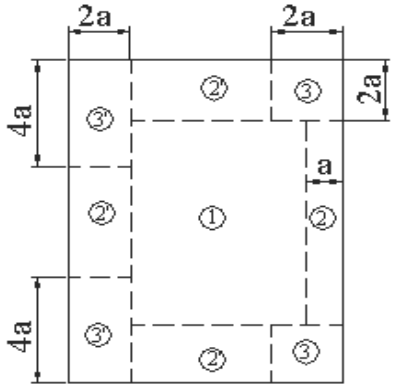
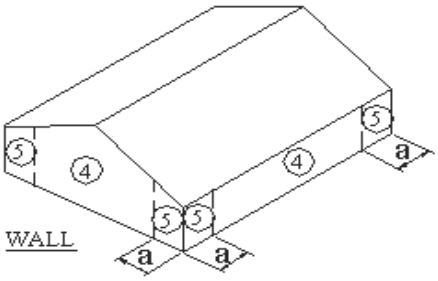
Location of Wind Pressure Zones

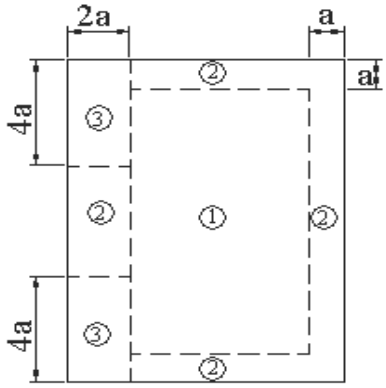


Gable $\theta \leq 7$ degrees and
Monoslope ≤ 3 degrees

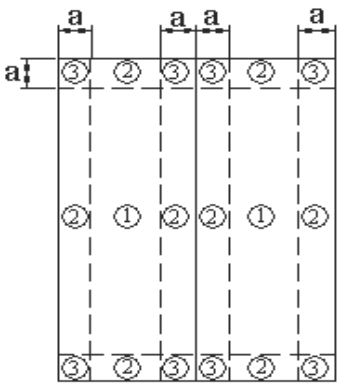


Monoslope roofs
$3° < \theta \leq 10°$

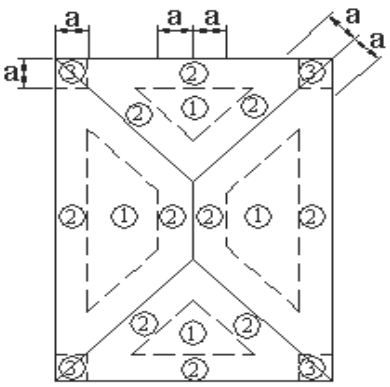




Monoslope roofs $10° < \theta \leq 30°$



Gable $7 < \theta \leq 45$ degrees



Hip $7 < \theta < 27$ degrees

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V. Wind Loads - Components & Cladding : h > 60'

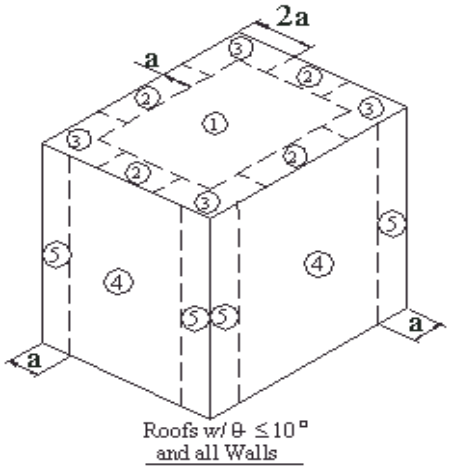
Kh (case 1) = 0.88 | h = 18.0 ft | h<= 60', use C&C<90 pressures
Base pressure (qh) = **23.2 psf** | a = 6.1 ft | NOTE: If tributary area is greater than
Minimum parapet ht = 0.0 ft | GCpi = +/-0.18 | 700sf, MWFRS pressure may be used.
Roof Angle = 0.0 deg | qi = qh = 23.2 psf
Type of roof = Hip | Code doesn't provide data for hip roofs with angles <=7 deg or > 27 deg. Gable values shown.

Roof	GCp			Surface Pressure (psf)			**User input**	
Area	10 sf	100 sf	500 sf	10 sf	100 sf	500 sf	20 sf	250 sf
Negative Zone 1	-1.40	-1.11	-0.90	-36.7 psf	-29.9 psf	-25.1 psf	-34.6 psf	-27.1 psf
Negative Zone 2	-2.30	-1.89	-1.60	-57.6 psf	-48.0 psf	-41.3 psf	-54.7 psf	-44.2 psf
Negative Zone 3	-3.20	-2.67	-2.30	-78.5 psf	-66.2 psf	-57.6 psf	-74.8 psf	-61.3 psf
Positive Zones 1-3	-	-	-	10.0 psf	10.0 psf	10.0 psf	10.0 psf	10.0 psf

Walls	GCp			Surface Pressure at "h"			**User input**	
Area	20 sf	100 sf	500 sf	20 sf	100 sf	500 sf	20 sf	200 sf
Negative Zone 4	-0.90	-0.80	-0.70	-25.1 psf	-22.8 psf	-20.4 psf	-25.1 psf	-21.8 psf
Negative Zone 5	-1.80	-1.40	-1.00	-46.0 psf	-36.7 psf	-27.4 psf	-46.0 psf	-32.7 psf
Positive Zone 4 & 5	0.90	0.75	0.60	25.1 psf	21.6 psf	18.1 psf	25.1 psf	20.1 psf

NOTE: Negative zones 4 & 5 pressures apply to all heights. Positive pressures vary with height, see below.

Wall surface pressure at "z"				Positive zone 4 & 5 (psf)		
z	Kz	Kzt	qz (psf)	20 sf	100 sf	500 sf
0 to 15'	0.85	1.00	22.4	24.3	20.9	17.6
h= 18.0 ft	0.88	1.00	23.2	25.1	21.6	18.1



Parapet			
z	Kz	Kzt	qp
0.0 ft	0.85	1.00	0.0 psf

CASE A = pressure towards building
CASE B = pressure away from building

	Surface Pressure (psf)			**User input**
Solid Parapet Pressure	10 sf	100 sf	500 sf	40 sf
CASE A : Interior zone:	0.0 psf	0.0 psf	0.0 psf	0.0 psf
Corner zone:	0.0 psf	0.0 psf	0.0 psf	0.0 psf
CASE B : Interior zone:	0.0 psf	0.0 psf	0.0 psf	0.0 psf
Corner zone:	0.0 psf	0.0 psf	0.0 psf	0.0 psf

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V. Wind Loads - Open Buildings (per ASCE7-05): 0.25 ≤ h/L ≤ 1.0

Type of roof = Monoslope Free Roofs G = 0.85
Wind Flow = Obstructed Roof Angle = 0.0 deg

Main Wind Force Resisting System

Kz = Kh (case 2) = 0.88 Base pressure (qh) = **23.2 psf**

Roof pressures - Wind Normal to Ridge

Wind Flow	Load Case		Wind Direction γ = 0 & 180 deg	
			Cnw	Cnl
Obstructed Wind Flow	A	Cn =	-0.50	-1.20
		p =	-9.9 psf	-23.7 psf
	B	Cn =	-1.10	-0.60
		p =	-21.7 psf	-11.8 psf

NOTE: 1). Cnw and Cnl denote combined pressures from top and bottom roof surfaces.
2). Cnw is pressure on windward half of roof. Cnl is pressure on leeward half of roof.
3). Positive pressures act toward the roof. Negative pressures act away from the roof.

Roof pressures - Wind Parallel to Ridge, γ = 90 deg

Wind Flow	Load Case		Horizontal Distance from Windward Edge		
			≤ h	>h ≤ 2h	> 2h
Obstructed Wind Flow	A	Cn =	-1.20	-0.90	-0.60
		p =	-23.7 psf	-17.8 psf	-11.8 psf
	B	Cn =	0.50	0.50	0.30
		p =	9.9 psf	9.9 psf	5.9 psf

h = 18.0 ft
2h = 36.0 ft

Fascia Panels -Horizontal pressures

qp = 23.2 psf Windward fascia: 34.8 psf (GCpn = +1.5)
Leeward fascia: -23.2 psf (GCpn = -1.0)

Components & Cladding - roof pressures

Kz = Kh (case 1) = 0.88 a = 6.1 ft a^2 = 37.6 sf
Base pressure (qh) = **23.2 psf** $4a^2$ = 150.5 sf
G = 0.85

	Effective Wind Area	Obstructed Wind Flow					
		zone 3		zone 2		zone 1	
		positive	negative	positive	negative	positive	negative
C_N	≤ 37.6 sf	1.00	-3.60	0.80	-1.80	0.50	-1.20
	>37.6, ≤ 150.5 sf	0.80	-1.80	0.80	-1.80	0.50	-1.20
	> 150.5 sf	0.50	-1.20	0.50	-1.20	0.50	-1.20
Wind pressure	≤ 37.6 sf	19.7 psf	-71.1 psf	15.8 psf	-35.5 psf	9.9 psf	-23.7 psf
	>37.6, ≤ 150.5 sf	15.8 psf	-35.5 psf	15.8 psf	-35.5 psf	9.9 psf	-23.7 psf
	> 150.5 sf	9.9 psf	-23.7 psf	9.9 psf	-23.7 psf	9.9 psf	-23.7 psf

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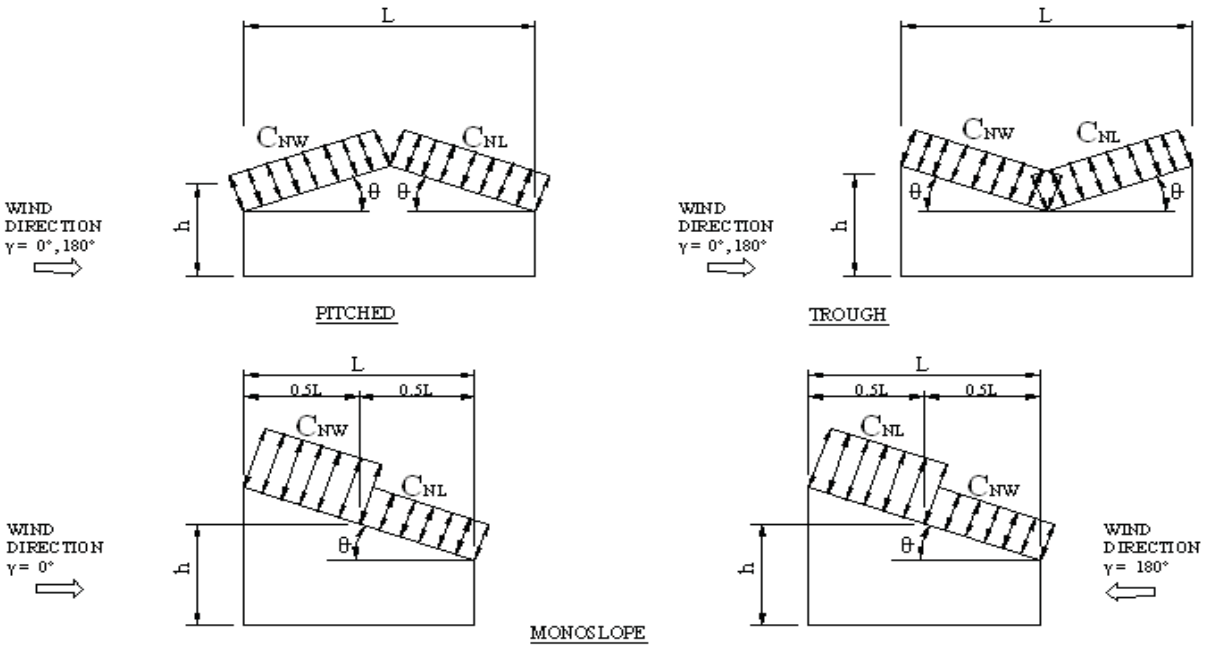
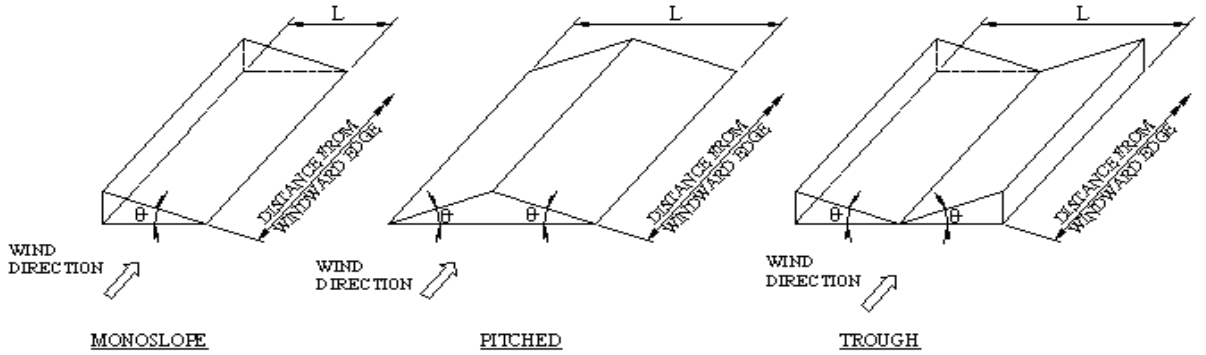
Location of Wind Pressure Zones

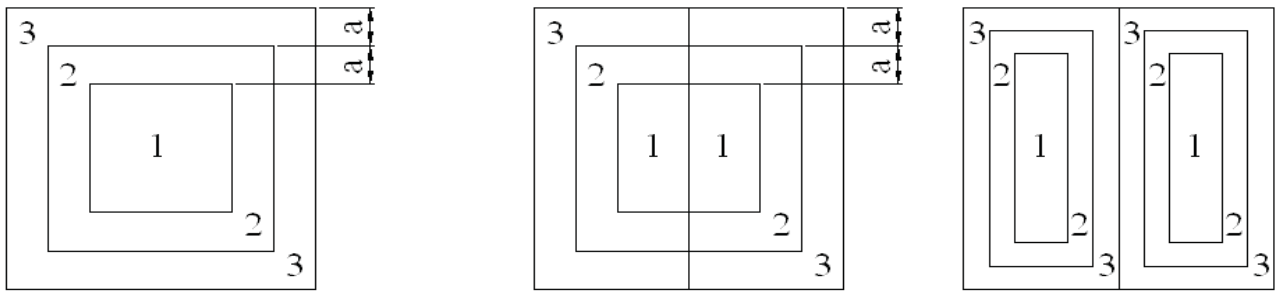


WIND DIRECTION $\gamma = 0°, 180°$



WIND DIRECTION $\gamma = 90°$

MAIN WIND FORCE RESISTING SYSTEM



COMPONENTS AND CLADDING

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V. Wind Loads - Other Structures:

Importance Factor = 1.00
Gust Effect Factor (G) = 0.85 Wind Speed 110 mph
Kzt = 1.00 Exposure C

A. Solid Freestanding Walls & Solid Signs (& open signs with less than 30% open)

Dist to sign top (h) 8.0 ft
Height (s) 8.0 ft
Width (B) 200.0 ft
Wall Return (Lr) 0.0 ft
Directionality (Kd) 0.85
Percent of open area to gross area 0.0%

s/h = 1.00
B/s = 25.00
Lr/s = 0.00
Kz = 0.849
qz = 22.4 psf
Open reduction factor = 1.00

Case C reduction factors
Factor if s/h>0.8 = 0.80
Wall return factor for Cf at 0 to s = 1.00

Case A & B
C_f = 1.30
F = qz G Cf As = **24.7 As**
As = 10.0 sf
F = 247 lbs

CaseC

Horiz dist from windward edge	Cf	F=qzGCfAs (psf)
0 to s	3.29	62.5 **As**
s to 2s	2.07	39.2 **As**
2s to 3s	1.59	30.1 **As**
3s to 4s	1.31	24.8 **As**
4s to 5s	1.23	23.4 **As**
5s to 10s	0.78	14.8 **As**
>10s	0.44	8.4 **As**

B. Open Signs & Lattice Frameworks (openings 30% or more of gross area)

Height to centroid of Af (z) 15.0 ft
Width (zero if round) 2.0 ft
Diameter (zero if rect) 2.0 ft
Percent of open area to gross area 35.0%
Directionality (Kd) 0.85

Either width or diameter must be zero
D(qz)^.5 = 9.46
∈ = 0.65
C_f = 0

Kz = 0.849
Base pressure (qz) = 22.4 psf
$F = q_z G C_f A_f$ = **0.0 Af**
Solid Area: A_f = 10.0 sf
F = 0 lbs

C. Chimneys, Tanks & Similar Structures

Height to centroid of Af (z) 15.0 ft
Cross-Section Square
Directionality (Kd) 0.90
Height (h) 15.0 ft
Width (D) 1.0 ft
Type of Surface N/A

Kz = 0.849
Base pressure (qz) = 23.7 psf
h/D = 15.00

Square (wind along diagonal)
Cf = 1.28
F = qz G Cf Af = **25.7 Af**
Af = 10.0 sf
F = 257 lbs

Square (wind normal to face)
C_f = 1.67
$F = q_z G C_f A_f$ = **33.5 Af**
A_f = 10.0 sf
F = 335 lbs

D. Trussed Towers

Height to centroid of Af (z) 15.0 ft
∈ = 0.27
Tower Cross Section square
Member Shape flat
Directionality (Kd) 1.00

Kz = 0.849
Base pressure (qz) = 26.3 psf

Diagonal wind factor = 1.2
Round member factor = 1.000

Square (wind along tower diagonal)
Cf = 3.24
F = qz G Cf Af = **72.4 Af**
Solid Area: Af = 10.0 sf
F = 724 lbs

Square (wind normal to face)
C_f = 2.70
$F = q_z G C_f A_f$ = **60.3 Af**
Solid Area: A_f = 10.0 sf
F = 603 lbs

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VII. Snow Loads :

Roof slope		=	0.0 deg
Horiz. eave to ridge dist (W)		=	35.0 ft
Roof length parallel to ridge (L)		=	161.7 ft
Type of Roof			Hip and gable w/ trussed systems
Ground Snow Load	Pg	=	0.0 psf
Importance Category		=	II
Importance Factor	I	=	1.0
Thermal Factor	Ct	=	1.00
Exposure Factor	Ce	=	1.0
Pf = 0.7*Ce*Ct*I*Pg		=	0.0 psf
Pf min		=	0.0 psf
Flat Roof Snow Load	Pf	=	0.0 psf
Rain on Snow Surcharge Angle		=	0.70 deg
Code Maximum Rain Surcharge			5.0 psf
Rain on Snow Surcharge		=	0.0 psf
Unobstructed Slippery Surface (per Section 7.4)		=	no
Sloped-roof Factor	Cs	=	1.00
Design Roof Snow Load (Ps)		=	**0.0 psf** ("balanced" snow load)
Building Official Minimum		=	0.0 psf

Exposure Factor, Ce			
	Exposure of roof		
Terrain	Fully	Partially	Sheltered
A	n/a	1.1	1.3
B	0.9	1.0	1.2
C	0.9	1.0	1.1
D	0.8	0.9	1.0
Above treeline	0.7	0.8	n/a
Alaska-no trees	0.7	0.8	n/a

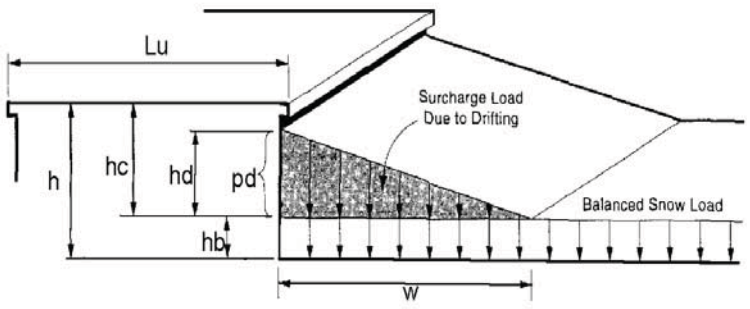
NOTE: Alternate spans of continuous beams and other areas shall be loaded with half the design roof snow load so as to produce the greatest possible effect - see code.

Unbalanced Snow Loads - for Hip & Gable roofs only

Larger of 2.38 degrees or 70/W + 0.5 =			2.5 deg **Unbalanced snow loads are not required**
Windward snow load =			0.0 psf
Leeward snow load =			0.0 psf

Leeward Snow Drifts - from adjacent higher roof

Upper roof length	lu	=	0.0 ft
Projection height	h	=	0.0 ft
Building separation	s	=	0.0 ft
Adjacent structure factor			1.00
Snow density	γ	=	14.0 pcf
Balanced snow height	hb	=	0.00 ft
	hc	=	0.00 ft
#DIV/0! #DIV/0!	**#DIV/0!**		
Drift height	hd	=	#DIV/0!
Drift width	w	=	#DIV/0!
Surcharge load:	pd = g*hd	=	**#DIV/0!**



Windward Snow Drifts - Against walls, parapets, etc more than 15' long

Building roof length	lu	=	0.0 ft
Projection height	h	=	0.0 ft
Snow density	γ	=	14.0 pcf
Balanced snow height	hb	=	0.00 ft
	hc	=	0.00 ft
#DIV/0! #DIV/0!	**#DIV/0!**		
Drift height	hd	=	#DIV/0!
Drift width	w	=	#DIV/0!
Surcharge load:	pd = g*hd	=	**#DIV/0!**

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VII. Snow Loads - from adjacent building or roof:

		Higher Roof	Lower Roof
Roof slope	=	0.0 deg	0.0 deg
Horiz. eave to ridge dist (W)	=	30.7 ft	0.0 ft
Roof length parallel to ridge (L)	=	161.7 ft	0.0 ft
Type of Roof		Hip and gable w/ trussed systems	Hip and gable w/ trussed systems
Ground Snow Load	Pg =	0.0 psf	0.0 psf
Importance Category	=	III	III
Importance Factor	I =	1.1	1.1
Thermal Factor	Ct =	1.00	1.00
Exposure Factor	Ce =	1.0	1.0
Pf = 0.7*Ce*Ct*I*Pg	=	0.0 psf	0.0 psf
Pf min	=	0.0 psf	0.0 psf
Flat Roof Snow Load	Pf =	0.0 psf	0.0 psf
Rain on Snow Surcharge Angle	=	0.61 deg	0.00 deg
Code Maximum Rain Surcharge		5.0 psf	5.0 psf
Rain on Snow Surcharge	=	0.0 psf	0.0 psf
Unobstructed Slippery Surface (per Section 7.4)	=	no	no
Sloped-roof Factor	Cs =	1.00	1.00
Design Roof Snow Load (Ps)	=	**0.0 psf**	**0.0 psf** ("balanced" snow load)
Building Official Minimum	=	0.0 psf	0.0 psf

Exposure Factor, Ce			
	Exposure of roof		
Terrain	Fully	Partially	Sheltered
A	n/a	1.1	1.3
B	0.9	1.0	1.2
C	0.9	1.0	1.1
D	0.8	0.9	1.0
Above treeline	0.7	0.8	n/a
Alaska-no trees	0.7	0.8	n/a

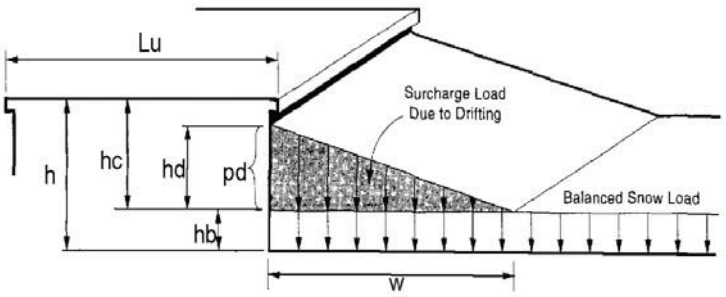
NOTE: Alternate spans of continuous beams and other areas shall be loaded with half the design roof snow load so as to produce the greatest possible effect - see code.

High Roof Unbalanced Snow Loads - for Hip & Gable roofs only

Larger of 2.38 degrees or 70/W + 0.5 =	2.8 deg	**Unbalanced snow loads are not required**
Windward snow load =	0.0 psf	
Leeward snow load =	0.0 psf	

Leeward Snow Drifts - from adjacent higher roof

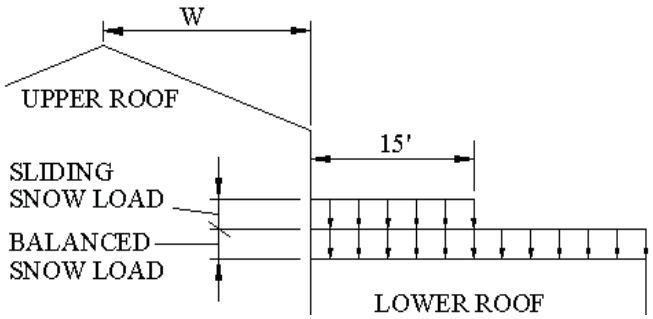
Upper roof length	lu =	0.0 ft
Projection height	h =	0.0 ft
Building separation	s =	0.0 ft
Adjacent structure factor	=	1.00
Snow density	γ =	14.0 pcf
Balanced snow height	hb =	0.00 ft
	hc =	0.00 ft
#DIV/0! #DIV/0!	**#DIV/0!**	
Drift height	hd =	#DIV/0!
Drift width	w =	#DIV/0!
Surcharge load:	pd = g*hd =	**#DIV/0!**
Balanced Snow load:	=	0.0 psf



Sliding Snow - onto lower roof

Sliding snow = 0.4 Pf W =	0.0 plf
Distributed over 15 feet =	0.0 psf
Balanced snow load =	0.0 psf
Total snow load within 15' of higher roof =	**0.0 psf**

Not required since upper roof slope is 1/4 in 12 or less



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VI. Seismic Loads: ASCE 7- 05

Occupancy Category: II
Importance Factor (I) : 1.00
Site Class : D

Ss (0.2 sec) = 29.00 %g
S1 (1.0 sec) = 10.00 %g

Fa =	1.568		Sms =	0.455	S_{DS} =	0.303	Design Category =	B
Fv =	2.400		Sm1 =	0.240	S_{D1} =	0.160	Design Category =	C

Seismic Design Category = **C**
Number of Stories: 1
Structure Type: Not applicable
Horizontal Struct Irregularities: No plan Irregularity
Vertical Structural Irregularities: No vertical Irregularity
Flexible Diaphragms: No
Building System: **Building Frame Systems**
Seismic resisting system: **Ordinary steel concentrically braced frames**
System Building Height Limit: **Height not limited**
Actual Building Height (hn) = 18.0 ft

DESIGN COEFFICIENTS AND FACTORS

Response Modification Factor (R) = 3
System Over-Strength Factor (Ωo) = 2
Deflection Amplification Factor (Cd) = 3.25
S_{DS} = 0.303
S_{D1} = 0.160

ρ = redundancy coefficient
Q_E = horizontal seismic force
D = dead load

Seismic Load Effect (E) = ρQ_E +/- $0.2 S_{DS} D$ = ρQ_E +/- 0.061D
Special Seismic Load Effect (E) = $\Omega o Q_E$ +/- $0.2 S_{DS} D$ = 2.0 Q_E +/- 0.061D

PERMITTED ANALYTICAL PROCEDURES

Index Force Analysis (Seismic Category A only) Method Not Permitted

Simplified Analysis Use Equivalent Lateral Force Analysis

Equivalent Lateral-Force Analysis - Permitted

Building period coef. (C_T) = 0.020 Cu = 1.58
Approx fundamental period (Ta) = $C_T h_n^x$ = 0.175 sec x= 0.75 Tmax = CuTa = 0.276
User calculated fundamental period (T) = 0 sec Use T = 0.175
Long Period Transition Period (TL) = ASCE7 map = 8
Seismic response coef. (Cs) = SdsI/R = 0.101
need not exceed Cs = Sd1 I /RT = 0.305
but not less than Cs = 0.044Sds = 0.013
USE Cs = 0.101
Design Base Shear V = 0.101W

Model & Seismic Response Analysis - Permitted (see code for procedure)

ALLOWABLE STORY DRIFT

Structure Type: All other structures

Allowable story drift = 0.020hsx where hsx is the story height below level x

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VI. Seismic Loads - cont. :

Seismic Design Category (SDC)= C

CONNECTIONS

Force to connect smaller portions of structure to remainder of structure

$Fp = 0.133 S_{DS} w_p =$ 0.04 w_p
or $Fp = 0.5 w_p =$ 0.05 w_p Use Fp = 0.05 w_p w_p = weight of smaller portion

Beam, girder or truss connection for resisting horizontal force parallel to member

F_P = no less than 0.05 times dead plus live load vertical reaction

Anchorage of Concrete or Masonry Walls to elements providing lateral support

$Fp = 0.8 IeSdsWw =$ 0.243 w_w
or $Fp = 0.1 w_w =$ 0.10 w_w Use Fp = 0.24 w_w but not less than 280.0 plf
Connection force given is for flexible diaphragms (use architectural components for ridgid diaphrams)

MEMBER DESIGN

Bearing Walls and Shear Walls (out of plane force)

$Fp = 0.40 IeS_{DS} w_w =$ 0.121 w_w
or $Fp = 0.1 w_w =$ 0.10 w_w Use Fp = 0.12 w_w

Diaphragms

$Fp = 0.2 IeSdsWp + Vpx =$ 0.061 Wp + Vpx

ARCHITECTURAL COMPONENTS SEISMIC COEFFICIENTS

Architectural Component : 5. Veneer
a. Limited deformability elements and attachments

Importance Factor (Ip) : 1.0

Component Amplification Factor (a_p) = 1 h= 18.0 feet
Comp Response Modification Factor (R_p) = 2.5 z= 20.0 feet z/h = 1.00

$Fp = 0.4 a_p SdsIpWp(1+2z/h)/Rp =$ 0.146 Wp
not greater than $Fp = 1.6 SdsIpWp =$ 0.485 Wp
but not less than $Fp = 0.3 SdsIpWp =$ 0.091 Wp use Fp = 0.146 Wp

MECH AND ELEC COMPONENTS SEISMIC COEFFICIENTS

Seismic Design Category C & Ip=1.0, therefore Not required

Mech or Electrical Component : Other mechanical or electrical components.

Importance Factor (Ip) : 1.0

Component Amplification Factor (a_p) = 1 h= 18.0 feet
Comp Response Modification Factor (R_p) = 1.5 z= 20.0 feet z/h = 1.00

$Fp = 0.4 a_p SdsIpWp(1+2z/h)/Rp =$ 0.243 Wp
not greater than $Fp = 1.6 SdsIpWp =$ 0.485 Wp
but not less than $Fp = 0.3 SdsIpWp =$ 0.091 Wp use Fp = 0.243 Wp

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Roof Design Loads

Items	Description	Multiple	psf (max)	psf (min)
Partitions	None		0.0	0.0
Decking	Floor Deck and Concrete		51.0	51.0
Framing	Steel roof beams & girders		5.0	3.0
Decking	None	x 0.0"	0.0	0.0
Ceiling	Suspended acoustical tile	x 1 ply(s)	1.8	1.0
Mech & Elec	Mech. & Elec.		2.0	0.0
Sprinklers	Sprinklers		2.0	0.0
Other	Green Roof		80.0	80.0
		Actual Dead Load	◉ 141.8	◉ 135.0
		Use this DL instead	○ 20.0	○ 9.0
		Live Load	20.0	0.0
		Snow Load	0.0	0.0
		Wind (zone 2 - 100sf)	10.0	-29.7
ASD Loading		Dead + Live Load	161.8	-
		Dead + 0.75(Wind + Live) Load	164.3	-
		0.6*Dead + Wind Load	-	51.3
LRFD Loading		1.2D + 1.6 Lr + 0.8W	210.2	-
		1.2D + 1.6W + 0.5Lr	196.2	-
		0.9D + 1.6W	-	73.9

Roof Live Load Reduction Roof angle 0.00 / 12 0.0 deg

0 to 200 sf: 20.0 psf
200 to 600 sf: 24 - 0.02Area, but not less than 12 psf
over 600 sf: 12.0 psf

	300 sf	18.00
	400 sf	16.00
	500 sf	14.00
User Input:	450 psf	15.00

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Floor Design Loads

Items	Description	Multiple	psf (max)	psf (min)
Roofing	None		0.0	0.0
Insulation	None	x 0.00"	0.0	0.0
0	None		0.0	0.0
Other	None		0.0	0.0
Ceiling	None	x 0.00"	0.0	0.0
Other	None	x 0 ply(s)	0.0	0.0
Other	None		0.0	8.0
Other	None		0.0	10.0
Partitions	None		0.0	0.0
Partitions	None		0.0	0.0
		Actual Dead Load	(●) 0.0	(●) 18.0
		Use this DL instead	( ) 100.0	( ) 50.0
		Partitions	N/A	0.0
		Live Load	100.0	0.0
		Total Live Load	#VALUE!	0.0
		Total Load	#VALUE!	18.0

FLOOR LIVE LOAD REDUCTION (not including partitions)

NOTE: Not allowed for assembly occupancy or LL>100psf or passenger car garages, except may reduce columns 20% if 2 or more floors & non-assembly

$L=Lo(0.25+15/\sqrt{K_{LL}A_T})$

Unreduced design live load: Lo = 100 psf

Floor member K_{LL} = 2
Tributary Area A_T = 432 sf
Reduced live load: L = 76.0 psf

Columns (2 or more floors) K_{LL} = 4
Tributary Area A_T = 864 sf
Reduced live load: L = 50.5 psf

IBC alternate procedure
Smallest of:
R= .08%(SF - 150)
R= 23.1(1+D/L) = 23.1%
R= 40% beams; 60% columns

R = 22.6%
Reduced live load: L = 77.4 psf

R = 23.1%
Reduced live load: L = 76.9 psf

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JOB TITLE CIC Detachment 5-9 Building

JOB NO. 173133C **SHEET NO.**
CALCULATED BY T.Corwith **DATE** 5/2/12
CHECKED BY **DATE**

CODE SUMMARY

Code: International Building Code 2006

Live Loads:

Roof	0 to 200 sf:	20 psf
	200 to 600 sf:	24 - 0.02Area, but not less than 12 psf
	over 600 sf:	12 psf

Floor	100 psf
Stairs & Exitways	100 psf
Balcony / Deck	100 psf
Mechanical	125 psf
Partitions	N/A

Dead Loads:

Floor	0.0 psf
Roof	141.8 psf

Roof Snow Loads:

Design Roof Snow load		=	0.0 psf
Flat Roof Snow Load	Pf	=	0.0 psf
Ground Snow Load	Pg	=	0.0 psf
Rain on Snow Surcharge		=	0.0 psf
Snow Exposure Factor	Ce	=	1.00
Importance Factor	I	=	1.00
Thermal Factor	Ct	=	1.00
Sloped-roof Factor	Cs	=	1.00

Wind Design Data:

Basic Wind speed	110 mph
Mean Roof Ht (h)	18.0 ft
Building Category	II
Importance Factor	1.00
Exposure Category	C
Enclosure Classif.	Enclosed Building
Internal pressure Coef.	+/-0.18
Directionality (Kd)	0.85

Earthquake Design Data:

Occupancy Category:		=	II
Importance Factor	I	=	1.00
Mapped spectral response	Ss	=	29.00 %g
accelerations	S1	=	10.00 %g
Site Class		=	D
Spectral Response Coef.	Sds	=	0.303
	Sd1	=	0.160
Seismic Design Category		=	C
Basic Structural System		=	Building Frame Systems
Seismic Resisting System		=	Ordinary steel concentrically braced frames
Design Base Shear	V	=	0.101W
Seismic Response Coef.	Cs	=	0.101
Response Modification Factor	R	=	3
Analysis Procedure		=	Equivalent Lateral-Force Analysis

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JOB TITLE CIC Detachment 5-9 Building

JOB NO. 173133C **SHEET NO.**
CALCULATED BY T.Corwith **DATE** 5/2/12
CHECKED BY **DATE**

CODE SUMMARY- continued

Component and cladding wind pressures

h>60 feet

h<= 60' - can't use procedure.

Roof	Surface Pressure (psf)		
Area	10 sf	100 sf	500 sf
Negative Zone 1	-36.7	-29.9	-25.1
Negative Zone 2	-57.6	-48.0	-41.3
Negative Zone 3	-78.5	-66.2	-57.6
Positive Zones 1-3	10.0	10.0	10.0

Wall	Surface Pressure (psf)		
Area	20 sf	100 sf	500 sf
Negative Zone 4	-25.1	-22.8	-20.4
Negative Zone 5	-46.0	-36.7	-27.4
Positive Zone 4 & 5			
0 to 15'	24.3	20.9	17.6
18 ft	25.1	21.6	18.1

Parapet	Solid Parapet Pressure (psf)		
Area	10 sf	100 sf	500 sf
CASE A: Interior zone	0.0	0.0	0.0
Corner zone	0.0	0.0	0.0
CASE B: Interior zone	0.0	0.0	0.0
Corner zone	0.0	0.0	0.0

Building Frame Analysis

CIC – RA 5-9; Ft. Stewart, Georgia

Loads:

The loads given below are a summary of the loads calculated within the *code search spreadsheet* . Designed in accordance with IBC 2006/ ASCE 7-05

Live Loads

20.0 psf Roof Live Load

Dead Loads

141.8 psf Roof Self Weight and Superimposed Dead Load

Seismic Loads

Equivalent Lateral Force Method is Permitted

C SDC

0.020hsx Allowable drift

0.1010W Design Base shear

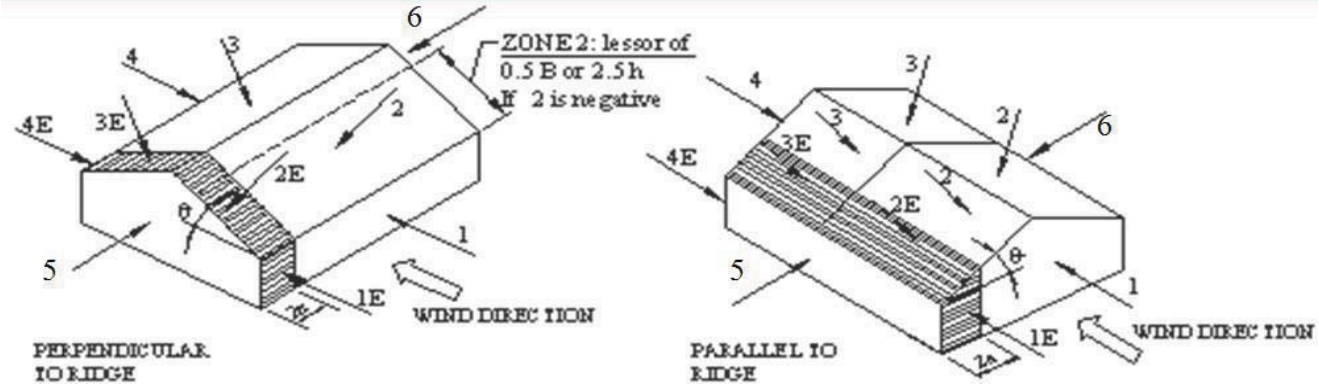
Wind Loads

Main Wind Force Resisting System				
	Wind Surface Pressure			
Zone	Transverse Direction		Longitudinal Direction	
1	13.47 psf	5.11 psf	13.47 psf	5.11 psf
2	-11.84 psf	-20.21 psf	-11.84 psf	-20.21 psf
3	-4.41 psf	-12.77 psf	-4.41 psf	-12.77 psf
4	-2.55 psf	-10.92 psf	-2.55 psf	-10.92 psf
5	-6.27 psf	-14.63 psf	-6.27 psf	-14.63 psf
6	-6.27 psf	-14.63 psf	-6.27 psf	-14.63 psf
1E	18.35 psf	9.99 psf	18.35 psf	9.99 psf
2E	-20.67 psf	-29.03 psf	-20.67 psf	-29.03 psf
3E	-8.13 psf	-16.49 psf	-8.13 psf	-16.49 psf
4E	-5.81 psf	-14.17 psf	-5.81 psf	-14.17 psf

6.13 ft Dimension a

Zone diagrams follow

Main Wind Force Resisting System Zones



Strength Design Load Combinations for member size design

16-1	1.4(D)
16-2	1.2(D) + 1.6(L) + 0.5(Lr or S)
16-3	1.2(D) + 1.6(Lr or S) + (0.5L or 0.8W)
16-4	1.2(D) + 1.6(W) + L + 0.5(Lr or S)
16-5	1.2(D) + 1.0(E) + L + 0.2(S)
16-6	0.9(D) + 1.6(W)
16-7	0.9(D) + 1.0(E)

Roof live load controls over snow load. The "S" Load will be omitted

Allowable Stress Design load combinations are used for footing size check and building deflection checks.

16-10	D + Lr
16-12a	D + (W)
16-12b	D + (0.7E)
16-13a	D + 0.75(0.7E) + 0.75(Lr)
16-13b	D + 0.75(W) + 0.75(Lr)
16-14	0.6(D) + W
16-15	0.6(D) + 0.7(E)

The above load combinations are plugged into the analysis model and used to check the design of the structure

PARSONS BRINCKERHOFF

Subject:	CIC Detachment 5-9 - Ft. Stewart GA Load Calc. for RISA Input	*Page:*	of
		Made by:	Corwith, Travis
		Date:	10-Apr-2012
		Checked by:	
		Date:	

173133C

Roof Gravity Load:

Auto	Structural Dead Load (Self Weight)	
141.8 psf	SI DL	**Note: The SI-DL includes an allowance for the joist and steel deck weight which are not included in the self weight for the RISA model*
20.0 psf	RLL	

Seismic Load:

14.50 ft	Eave Ht
7.25 ft	Wall half Height
10.0 psf	Wall Weight (CFS studs, wall board, stucco, and paint)
72.5 plf	Load around perimeter

1453.5 plf	***DL (exterior Beam - Lines A, D)***
2894.8 plf	***DL (Interior Beam - Lines B, C)***
205.0 plf	***LL (exterior Beam - Lines A, D)***
408.3 plf	***LL (Interior Beam - Lines B, C)***

Building Dimensions:

161.67 ft	Length
61.33 ft	Width
9,915 ft²	Area
445.99 ft	Perimeter
14.50 ft	Eave Elevation
18.00 ft	Average Roof Elevation

Total Seismic Loading:

80.00 k	Superstructure Self Weight (From RISA)
1405.95 k	SI DL Weight (used to calculate seismic load)
32.33 k	Wall Weight
1518.28 k	Sum of Seismic Dead Load
0.1010W	Seismic Base Shear Factor
153.42 k	***Seismic Load (applied at eave elevation as approximate center of mass of the roof level)***

Since the diaphragm is rigid, the inherent torsion and accidental torsion (ASCE 7-05 12.8.4.1-12.8.4.3) shall be considered; the geometric location of the applied seismic load will be adjusted to include these effects

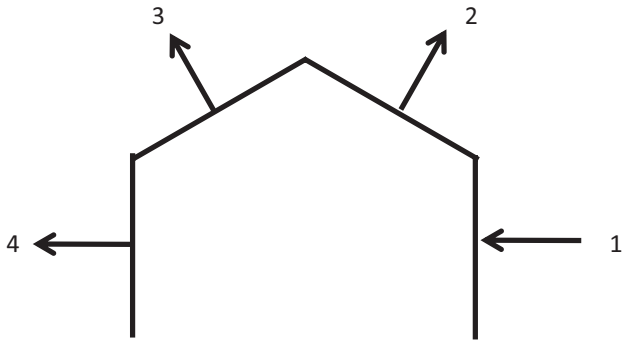
In accordance with ASCE 7-05 12.5.3 seismic loading shall follow the orthogonal combination procedure.

Wind Load

1 The vertical component of the wind load is considered negligible compared to the superimposed dead load and is omitted

Transverse Wind Loading (Zone 1 + 4; Longitudinal Case)

61.33 ft	Width
7.25 ft	Height (Wall only)
6.13 ft	Edge Length
12.27 ft	Edge Width
49.06 ft	Non-Edge Width
24.2 psf	Edge Load (Sum of each face)
16.0 psf	Non-Edge Load (Sum of each face)
89 ft²	Edge Area
356 ft²	Non-Edge Area
7.85 k	***Total Transverse Wind Load***
61.33 ft	*Building Transverse Width*
0.13 klf	***Uniform Load applied at the eave normal to Grid 1 or 9***



Longitudinal Wind Loading (Zone 1 + 4; Transverse Case)

161.67 ft	Width
7.25 ft	Height (Wall only)
6.13 ft	Edge Length
12.27 ft	Edge Width
149.40 ft	Non-Edge Width
24.2 psf	Edge Load (Sum of each face)
16.0 psf	Non-Edge Load (Sum of each face)
89 ft²	Edge Area
1,083 ft²	Non-Edge Area
19.51 k	***Total Longitudinal Wind Load***
161.67 ft	*Building Longitudinal Width*
0.12 klf	***Uniform Load applied at the eave normal to Grid A or D***

RISA Model

CIC – RA 5-9; Ft. Stewart, Georgia

Global

Display Sections for Member Calcs	10
Max Internal Sections for Member Calcs	100
Include Shear Deformation	Yes
Include Warping	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Vertical Axis	Z
Global Member Orientation Plane	XY

Hot Rolled Steel Code	AISC 13th(360-05): LRFD (Direct Analysis Method)
Cold Formed Steel Code	AISI NAS-07: ASD
Wood Code	AF&PA NDS-05/08: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-05
Masonry Code	ACI 530-05/08: ASD
Aluminum Code	AA ADM1-05: ASD

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections	Yes
Bad Framing Warnings	No
Unused Force Warnings	Yes

Seismic Code	ASCE 7-05
Seismic Base Elevation (ft)	Not Entered
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
Ca	.36
Cv	.54
Nv	1
SD1	1
SDS	1
S1	1
TL (sec)	Not Entered
Occupancy Code	4
Seismic Zone	3
Occupancy Cat	I or II
Use Gravity Self Wt in Diaphragm Mass	Yes
Use Deck Self Wt in Diaphragm Mass	Yes
Use Lateral Self Wt in Diaphragm Mass	Yes
Seismic Detailing Code	None
Om X	2
Om Z	2
Rho X	1
Rho Z	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E..Density[k/ft...		Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M5	N58	N57			W24X62	Beam	Wide Flange	A992	Typical
2	M6	N57	N56			W24X62	Beam	Wide Flange	A992	Typical
3	M7	N56	N55			W24X62	Beam	Wide Flange	A992	Typical
4	M8	N54	N53			W24X62	Beam	Wide Flange	A992	Typical
5	M9	N53	N52			W24X62	Beam	Wide Flange	A992	Typical
6	M10	N52	N51			W24X62	Beam	Wide Flange	A992	Typical
7	M11	N50	N49			W24X62	Beam	Wide Flange	A992	Typical
8	M12	N49	N48			W24X62	Beam	Wide Flange	A992	Typical
9	M13	N48	N47			W24X62	Beam	Wide Flange	A992	Typical
10	M14	N46	N45			W24X62	Beam	Wide Flange	A992	Typical
11	M15	N45	N44			W24X62	Beam	Wide Flange	A992	Typical
12	M16	N44	N43			W24X62	Beam	Wide Flange	A992	Typical
13	M17	N42	N41			W24X62	Beam	Wide Flange	A992	Typical
14	M18	N41	N40			W24X62	Beam	Wide Flange	A992	Typical
15	M19	N40	N39			W24X62	Beam	Wide Flange	A992	Typical
16	M20	N38	N37			W24X62	Beam	Wide Flange	A992	Typical
17	M21	N37	N36			W24X62	Beam	Wide Flange	A992	Typical
18	M22	N36	N35			W24X62	Beam	Wide Flange	A992	Typical
19	M23	N34	N33			W24X62	Beam	Wide Flange	A992	Typical
20	M24	N33	N32			W24X62	Beam	Wide Flange	A992	Typical
21	M25	N32	N31			W24X62	Beam	Wide Flange	A992	Typical
22	M26	N4	N34			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
23	M27	N3	N33			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
24	M28	N2	N32			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
25	M29	N1	N31			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
26	M30	N8	N38			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
27	M31	N7	N37			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
28	M32	N6	N36			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
29	M33	N5	N35			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
30	M34	N12	N42			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
31	M35	N11	N41			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
32	M36	N10	N40			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
33	M37	N9	N39			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
34	M38	N16	N46			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
35	M39	N15	N45			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
36	M40	N14	N44			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
37	M41	N13	N43			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
38	M42	N20	N50			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
39	M43	N19	N49			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
40	M44	N18	N48			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
41	M45	N17	N47			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
42	M46	N21	N51			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
43	M47	N22	N52			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
44	M48	N23	N53			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
45	M49	N24	N54			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
46	M50	N28	N58			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
47	M51	N27	N57			HSS6X6X4	Column	Tube	A500 Gr.46	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
48	M52	N26	N56			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
49	M53	N25	N55			HSS6X6X4	Column	Tube	A500 Gr.46	Typical
50	M54	N4	N63			HSS6X6X4	VBrace	Tube	A500 Gr.46	Typical
51	M55	N63	N8			HSS6X6X4	VBrace	Tube	A500 Gr.46	Typical
52	M56	N2	N33			HSS6X6X4	VBrace	Tube	A500 Gr.46	Typical
53	M57	N5	N64			HSS6X6X4	VBrace	Tube	A500 Gr.46	Typical
54	M58	N9	N64			HSS6X6X4	VBrace	Tube	A500 Gr.46	Typical
55	M59	N15	N46			HSS6X6X4	VBrace	Tube	A500 Gr.46	Typical
56	M60	N27	N53			HSS6X6X4	VBrace	Tube	A500 Gr.46	Typical
57	M61	N26	N52			HSS6X6X4	VBrace	Tube	A500 Gr.46	Typical
58	M62	N25	N56			HSS6X6X4	VBrace	Tube	A500 Gr.46	Typical
59	M59A	N31	N35			W24X62	Beam	Wide Flange	A992	Typical
60	M60A	N35	N39			W24X62	Beam	Wide Flange	A992	Typical
61	M61A	N39	N43			W24X62	Beam	Wide Flange	A992	Typical
62	M62A	N43	N47			W24X62	Beam	Wide Flange	A992	Typical
63	M63	N47	N51			W24X62	Beam	Wide Flange	A992	Typical
64	M64	N51	N55			W24X62	Beam	Wide Flange	A992	Typical
65	M65	N32	N36			W24X84	Beam	Wide Flange	A992	Typical
66	M66	N36	N40			W24X62	Beam	Wide Flange	A992	Typical
67	M67	N40	N44			W24X62	Beam	Wide Flange	A992	Typical
68	M68	N44	N48			W24X62	Beam	Wide Flange	A992	Typical
69	M69	N48	N52			W24X62	Beam	Wide Flange	A992	Typical
70	M70	N52	N56			W24X62	Beam	Wide Flange	A992	Typical
71	M71	N33	N37			W24X84	Beam	Wide Flange	A992	Typical
72	M72	N37	N41			W24X62	Beam	Wide Flange	A992	Typical
73	M73	N41	N45			W24X62	Beam	Wide Flange	A992	Typical
74	M74	N45	N49			W24X62	Beam	Wide Flange	A992	Typical
75	M75	N49	N53			W24X62	Beam	Wide Flange	A992	Typical
76	M76	N53	N57			W24X62	Beam	Wide Flange	A992	Typical
77	M77	N34	N38			W24X62	Beam	Wide Flange	A992	Typical
78	M78	N38	N42			W24X62	Beam	Wide Flange	A992	Typical
79	M79	N42	N46			W24X62	Beam	Wide Flange	A992	Typical
80	M80	N46	N50			W24X62	Beam	Wide Flange	A992	Typical
81	M81	N50	N54			W24X62	Beam	Wide Flange	A992	Typical
82	M82	N54	N58			W24X62	Beam	Wide Flange	A992	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	TOM	Inactive	Seismic Design ...
1	M5	BenPIN	BenPIN				Yes			None
2	M6	BenPIN	BenPIN				Yes			None
3	M7	BenPIN	BenPIN				Yes			None
4	M8	BenPIN	BenPIN				Yes			None
5	M9	BenPIN	BenPIN				Yes			None
6	M10	BenPIN	BenPIN				Yes			None
7	M11	BenPIN	BenPIN				Yes			None
8	M12	BenPIN	BenPIN				Yes			None
9	M13	BenPIN	BenPIN				Yes			None
10	M14	BenPIN	BenPIN				Yes			None
11	M15	BenPIN	BenPIN				Yes			None
12	M16	BenPIN	BenPIN				Yes			None
13	M17	BenPIN	BenPIN				Yes			None
14	M18	BenPIN	BenPIN				Yes			None
15	M19	BenPIN	BenPIN				Yes			None
16	M20	BenPIN	BenPIN				Yes			None
17	M21	BenPIN	BenPIN				Yes			None
18	M22	BenPIN	BenPIN				Yes			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	TOM	Inactive	Seismic Design ...
19	M23	BenPIN	BenPIN				Yes			None
20	M24	BenPIN	BenPIN				Yes			None
21	M25	BenPIN	BenPIN				Yes			None
22	M26						Yes			None
23	M27						Yes			None
24	M28						Yes			None
25	M29						Yes			None
26	M30						Yes			None
27	M31						Yes			None
28	M32						Yes			None
29	M33						Yes			None
30	M34						Yes			None
31	M35						Yes			None
32	M36						Yes			None
33	M37						Yes			None
34	M38						Yes			None
35	M39						Yes			None
36	M40						Yes			None
37	M41						Yes			None
38	M42						Yes			None
39	M43						Yes			None
40	M44						Yes			None
41	M45						Yes			None
42	M46						Yes			None
43	M47						Yes			None
44	M48						Yes			None
45	M49						Yes			None
46	M50						Yes			None
47	M51						Yes			None
48	M52						Yes			None
49	M53						Yes			None
50	M54	BenPIN	AllPIN				Yes			None
51	M55	BenPIN	AllPIN				Yes			None
52	M56	BenPIN	AllPIN				Yes			None
53	M57	BenPIN	AllPIN				Yes			None
54	M58	BenPIN	AllPIN				Yes			None
55	M59	BenPIN	AllPIN				Yes			None
56	M60	BenPIN	AllPIN				Yes			None
57	M61	BenPIN	AllPIN				Yes			None
58	M62	BenPIN	AllPIN				Yes			None
59	M59A	BenPIN	BenPIN				Yes			None
60	M60A	BenPIN	BenPIN				Yes			None
61	M61A	BenPIN	BenPIN				Yes			None
62	M62A	BenPIN	BenPIN				Yes			None
63	M63	BenPIN	BenPIN				Yes			None
64	M64	BenPIN	BenPIN				Yes			None
65	M65	BenPIN	BenPIN				Yes			None
66	M66	BenPIN	BenPIN				Yes			None
67	M67	BenPIN	BenPIN				Yes			None
68	M68	BenPIN	BenPIN				Yes			None
69	M69	BenPIN	BenPIN				Yes			None
70	M70	BenPIN	BenPIN				Yes			None
71	M71	BenPIN	BenPIN				Yes			None
72	M72	BenPIN	BenPIN				Yes			None
73	M73	BenPIN	BenPIN				Yes			None
74	M74	BenPIN	BenPIN				Yes			None
75	M75	BenPIN	BenPIN				Yes			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	TOM	Inactive	Seismic Design ...
76	M76	BenPIN	BenPIN				Yes			None
77	M77	BenPIN	BenPIN				Yes			None
78	M78	BenPIN	BenPIN				Yes			None
79	M79	BenPIN	BenPIN				Yes			None
80	M80	BenPIN	BenPIN				Yes			None
81	M81	BenPIN	BenPIN				Yes			None
82	M82	BenPIN	BenPIN				Yes			None

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	20.5	0	0	0	
3	N3	40.83	0	0	0	
4	N4	61.33	0	0	0	
5	N5	0	30	0	0	
6	N6	20.5	30	0	0	
7	N7	40.83	30	0	0	
8	N8	61.33	30	0	0	
9	N9	0	52.83	0	0	
10	N10	20.5	52.83	0	0	
11	N11	40.83	52.83	0	0	
12	N12	61.33	52.83	0	0	
13	N13	0	75.67	0	0	
14	N14	20.5	75.67	0	0	
15	N15	40.83	75.67	0	0	
16	N16	61.33	75.67	0	0	
17	N17	0	98.5	0	0	
18	N18	20.5	98.5	0	0	
19	N19	40.83	98.5	0	0	
20	N20	61.33	98.5	0	0	
21	N21	0	121.33	0	0	
22	N22	20.5	121.33	0	0	
23	N23	40.83	121.33	0	0	
24	N24	61.33	121.33	0	0	
25	N25	0	143.33	0	0	
26	N26	20.5	143.33	0	0	
27	N27	40.83	143.33	0	0	
28	N28	61.33	143.33	0	0	
29	N31	0	0	14.5	0	
30	N32	20.5	0	14.5	0	
31	N33	40.83	0	14.5	0	
32	N34	61.33	0	14.5	0	
33	N35	0	30	14.5	0	
34	N36	20.5	30	14.5	0	
35	N37	40.83	30	14.5	0	
36	N38	61.33	30	14.5	0	
37	N39	0	52.83	14.5	0	
38	N40	20.5	52.83	14.5	0	
39	N41	40.83	52.83	14.5	0	
40	N42	61.33	52.83	14.5	0	
41	N43	0	75.67	14.5	0	
42	N44	20.5	75.67	14.5	0	
43	N45	40.83	75.67	14.5	0	
44	N46	61.33	75.67	14.5	0	
45	N47	0	98.5	14.5	0	
46	N48	20.5	98.5	14.5	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
47	N49	40.83	98.5	14.5	0	
48	N50	61.33	98.5	14.5	0	
49	N51	0	121.33	14.5	0	
50	N52	20.5	121.33	14.5	0	
51	N53	40.83	121.33	14.5	0	
52	N54	61.33	121.33	14.5	0	
53	N55	0	143.33	14.5	0	
54	N56	20.5	143.33	14.5	0	
55	N57	40.83	143.33	14.5	0	
56	N58	61.33	143.33	14.5	0	
57	N63	61.33	15	14.5	0	
58	N64	0	41.42	14.5	0	
59	N1000	30.67	75.17	14.5	0	
60	N1001	32.17	71.67	14.5	0	

Hot Rolled Steel Design Parameters

	Label	Shape	Length...	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp b...	Kyy	Kzz	Cm-yy	Cm-zz	Cb	y sway	z sway	Function
1	M5	W24X62	20.5			3									Lateral
2	M6	W24X62	20.33			3									Lateral
3	M7	W24X62	20.5			3									Lateral
4	M8	W24X62	20.5			3									Lateral
5	M9	W24X62	20.33			3									Lateral
6	M10	W24X62	20.5			3									Lateral
7	M11	W24X62	20.5			3									Lateral
8	M12	W24X62	20.33			3									Lateral
9	M13	W24X62	20.5			3									Lateral
10	M14	W24X62	20.5			3									Lateral
11	M15	W24X62	20.33			3									Lateral
12	M16	W24X62	20.5			3									Lateral
13	M17	W24X62	20.5			3									Lateral
14	M18	W24X62	20.33			3									Lateral
15	M19	W24X62	20.5			3									Lateral
16	M20	W24X62	20.5			3									Lateral
17	M21	W24X62	20.33			3									Lateral
18	M22	W24X62	20.5			3									Lateral
19	M23	W24X62	20.5			3									Lateral
20	M24	W24X62	20.33			3									Lateral
21	M25	W24X62	20.5			3									Lateral
22	M26	HSS6X6...	14.5												Lateral
23	M27	HSS6X6...	14.5												Lateral
24	M28	HSS6X6...	14.5												Lateral
25	M29	HSS6X6...	14.5												Lateral
26	M30	HSS6X6...	14.5												Lateral
27	M31	HSS6X6...	14.5												Lateral
28	M32	HSS6X6...	14.5												Lateral
29	M33	HSS6X6...	14.5												Lateral
30	M34	HSS6X6...	14.5												Lateral
31	M35	HSS6X6...	14.5												Lateral
32	M36	HSS6X6...	14.5												Lateral
33	M37	HSS6X6...	14.5												Lateral
34	M38	HSS6X6...	14.5												Lateral
35	M39	HSS6X6...	14.5												Lateral
36	M40	HSS6X6...	14.5												Lateral
37	M41	HSS6X6...	14.5												Lateral
38	M42	HSS6X6...	14.5												Lateral
39	M43	HSS6X6...	14.5												Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length...	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp b...	Kyy	Kzz	Cm-yy	Cm-zz	Cb	y sway	z sway	Function
40	M44	HSS6X6...	14.5												Lateral
41	M45	HSS6X6...	14.5												Lateral
42	M46	HSS6X6...	14.5												Lateral
43	M47	HSS6X6...	14.5												Lateral
44	M48	HSS6X6...	14.5												Lateral
45	M49	HSS6X6...	14.5												Lateral
46	M50	HSS6X6...	14.5												Lateral
47	M51	HSS6X6...	14.5												Lateral
48	M52	HSS6X6...	14.5												Lateral
49	M53	HSS6X6...	14.5												Lateral
50	M54	HSS6X6...	20.863												Lateral
51	M55	HSS6X6...	20.863												Lateral
52	M56	HSS6X6...	24.971												Lateral
53	M57	HSS6X6...	18.457												Lateral
54	M58	HSS6X6...	18.451												Lateral
55	M59	HSS6X6...	25.11												Lateral
56	M60	HSS6X6...	26.349												Lateral
57	M61	HSS6X6...	26.349												Lateral
58	M62	HSS6X6...	25.11												Lateral
59	M59A	W24X62	30			3									Lateral
60	M60A	W24X62	22.83			3									Lateral
61	M61A	W24X62	22.84			3									Lateral
62	M62A	W24X62	22.83			3									Lateral
63	M63	W24X62	22.83			3									Lateral
64	M64	W24X62	22			3									Lateral
65	M65	W24X84	30			3									Lateral
66	M66	W24X62	22.83			3									Lateral
67	M67	W24X62	22.84			3									Lateral
68	M68	W24X62	22.83			3									Lateral
69	M69	W24X62	22.83			3									Lateral
70	M70	W24X62	22			3									Lateral
71	M71	W24X84	30			3									Lateral
72	M72	W24X62	22.83			3									Lateral
73	M73	W24X62	22.84			3									Lateral
74	M74	W24X62	22.83			3									Lateral
75	M75	W24X62	22.83			3									Lateral
76	M76	W24X62	22			3									Lateral
77	M77	W24X62	30			3									Lateral
78	M78	W24X62	22.83			3									Lateral
79	M79	W24X62	22.84			3									Lateral
80	M80	W24X62	22.83			3									Lateral
81	M81	W24X62	22.83			3									Lateral
82	M82	W24X62	22			3									Lateral

Joint Loads and Enforced Displacements (BLC 6 : Seismic Trans)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N1001	L	Y	153.42

Joint Loads and Enforced Displacements (BLC 7 : Seismic Long)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N1000	L	X	153.42

Member Distributed Loads (BLC 2 : Roof Live)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/ft,deg]	Start Location[ft...	End Location[ft,...
1	M59A	Z	-.205	-.205	0	0
2	M60A	Z	-.205	-.205	0	0
3	M61A	Z	-.205	-.205	0	0
4	M62A	Z	-.205	-.205	0	0
5	M63	Z	-.205	-.205	0	0
6	M64	Z	-.205	-.205	0	0
7	M77	Z	-.205	-.205	0	0
8	M78	Z	-.205	-.205	0	0
9	M79	Z	-.205	-.205	0	0
10	M80	Z	-.205	-.205	0	0
11	M81	Z	-.205	-.205	0	0
12	M82	Z	-.205	-.205	0	0
13	M65	Z	-.408	-.408	0	0
14	M66	Z	-.408	-.408	0	0
15	M67	Z	-.408	-.408	0	0
16	M68	Z	-.408	-.408	0	0
17	M69	Z	-.408	-.408	0	0
18	M70	Z	-.408	-.408	0	0
19	M76	Z	-.408	-.408	0	0
20	M75	Z	-.408	-.408	0	0
21	M74	Z	-.408	-.408	0	0
22	M73	Z	-.408	-.408	0	0
23	M71	Z	-.408	-.408	0	0
24	M72	Z	-.408	-.408	0	0

Member Distributed Loads (BLC 3 : Superimposed DL)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/ft,deg]	Start Location[ft...	End Location[ft,...
1	M59A	Z	-1.454	-1.454	0	0
2	M60A	Z	-1.454	-1.454	0	0
3	M61A	Z	-1.454	-1.454	0	0
4	M62A	Z	-1.454	-1.454	0	0
5	M63	Z	-1.454	-1.454	0	0
6	M64	Z	-1.454	-1.454	0	0
7	M77	Z	-1.454	-1.454	0	0
8	M78	Z	-1.454	-1.454	0	0
9	M79	Z	-1.454	-1.454	0	0
10	M80	Z	-1.454	-1.454	0	0
11	M81	Z	-1.454	-1.454	0	0
12	M82	Z	-1.454	-1.454	0	0
13	M65	Z	-2.895	-2.895	0	0
14	M66	Z	-2.895	-2.895	0	0
15	M67	Z	-2.895	-2.895	0	0
16	M68	Z	-2.895	-2.895	0	0
17	M69	Z	-2.895	-2.895	0	0
18	M70	Z	-2.895	-2.895	0	0
19	M76	Z	-2.895	-2.895	0	0
20	M75	Z	-2.895	-2.895	0	0
21	M74	Z	-2.895	-2.895	0	0
22	M73	Z	-2.895	-2.895	0	0
23	M72	Z	-2.895	-2.895	0	0
24	M71	Z	-2.895	-2.895	0	0

Member Distributed Loads (BLC 4 : Wind Trans)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/ft,deg]	Start Location[ft...	End Location[ft,...
1	M25	Y	.13	.13	0	0
2	M24	Y	.13	.13	0	0

Member Distributed Loads (BLC 4 : Wind Trans) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/ft,deg]	Start Location[ft...	End Location[ft,...
3	M23	Y	.13	.13	0	0

Member Distributed Loads (BLC 5 : Wind Long)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/ft,deg]	Start Location[ft...	End Location[ft,...
1	M59A	X	.12	.12	0	0
2	M60A	X	.12	.12	0	0
3	M61A	X	.12	.12	0	0
4	M62A	X	.12	.12	0	0
5	M63	X	.12	.12	0	0
6	M64	X	.12	.12	0	0

Basic Load Cases

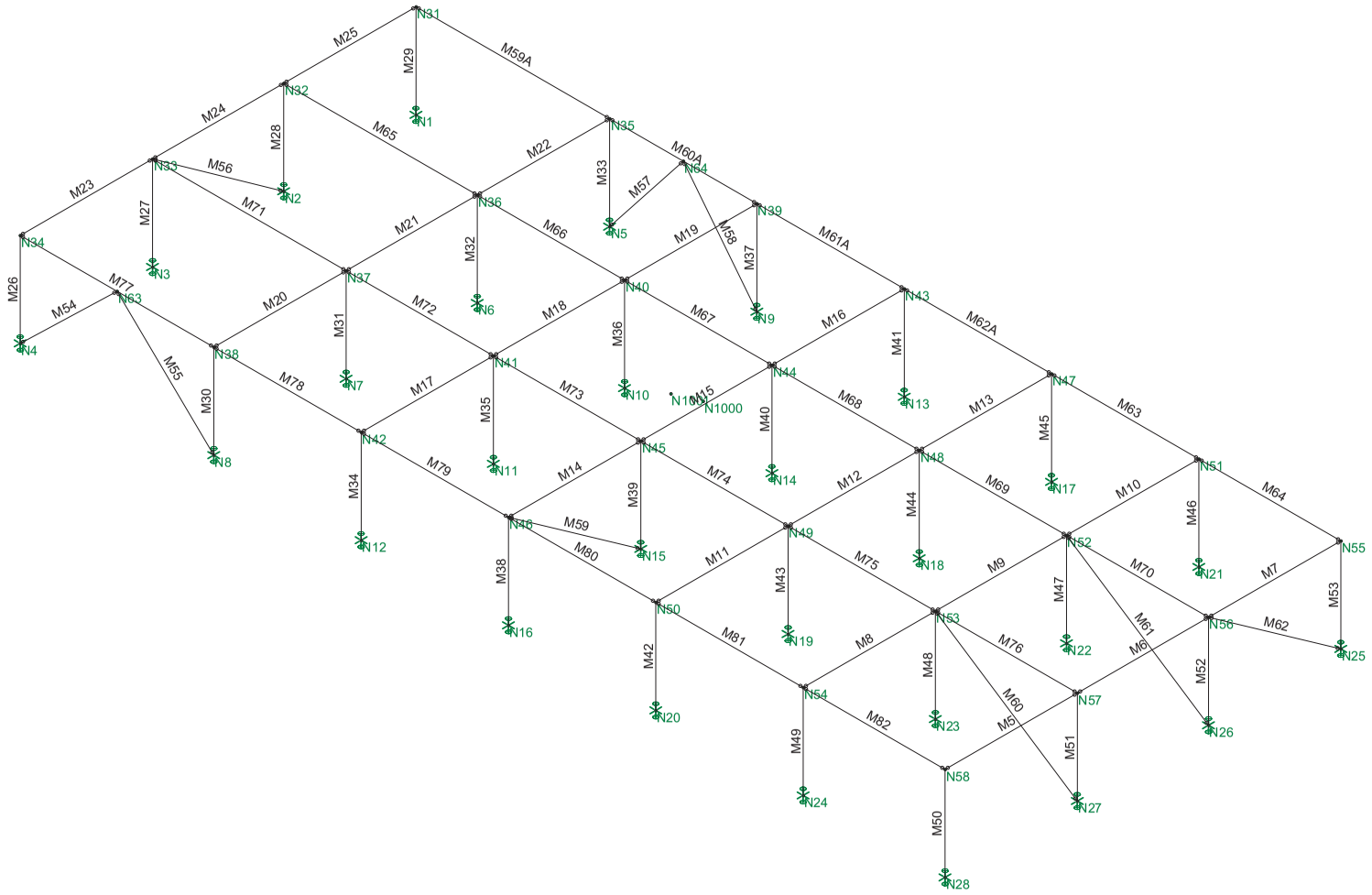
	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(M...	Surface...
1	Self Weight	DL			-1					
2	Roof Live	RLL						24		
3	Superimposed DL	DL						24		
4	Wind Trans	WL						3		
5	Wind Long	WL						6		
6	Seismic Trans	EL				1				
7	Seismic Long	EL				1				

Load Combinations

	Description	Sol...	PDelta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	LRFD 16-1	Yes	Y		DL	1.4														
2	LRFD 16-2	Yes	Y		DL	1.2	RLL	.5												
3	LRFD 16-3a	Yes	Y		DL	1.2	RLL	1.6	4	.8										
4	LRFD 16-3b	Yes	Y		DL	1.2	RLL	1.6	5	.8										
5	LRFD 16-4a	Yes	Y		DL	1.2	4	1.6	RLL	.5										
6	LRFD 16-4b	Yes	Y		DL	1.2	5	1.6	RLL	.5										
7	LRFD 16-5a	Yes	Y		DL	1.2	6	1												
8	LRFD 16-5b	Yes	Y		DL	1.2	7	1												
9	LRFD 16-6a	Yes	Y		DL	.9	4	1.6												
10	LRFD 16-6b	Yes	Y		DL	.9	5	1.6												
11	LRFD 16-7a	Yes	Y		DL	.9	6	1												
12	LRFD 16-7b	Yes	Y		DL	.9	7	1												
13	ASD 16-10	Yes			DL	1	RLL	1												
14	ASD 16-12a.1	Yes			DL	1	4	1												
15	ASD 16-12a.2	Yes			DL	1	5	1												
16	ASD 16- 12b.1	Yes			DL	1	6	.7												
17	ASD 16-12b.2	Yes			DL	1	7	.7												
18	ASD 16-13a.1	Yes			DL	1	6	.525	RLL	.75										
19	ASD 16-13a.2	Yes			DL	1	7	.525	RLL	.75										
20	ASD 16-13b.1	Yes			DL	1	4	.75	RLL	.75										
21	ASD 16-13b.2	Yes			DL	1	5	.75	RLL	.75										
22	ASD 16-14a	Yes			DL	.6	4	1												
23	ASD 16-14b	Yes			DL	.6	5	1												
24	ASD 16-15a	Yes			DL	.6	6	.7												
25	ASD 16-15b	Yes			DL	.6	7	.7												
26	Self Weight	Yes	Y		1	1														
27	Roof Live	Yes	Y		2	1														
28	Superimposed Dead	Yes	Y		3	1														
29	Wind Trans	Yes	Y		4	1														
30	Wind Long	Yes	Y		5	1														
31	Seismic Trans	Yes	Y		6	1														

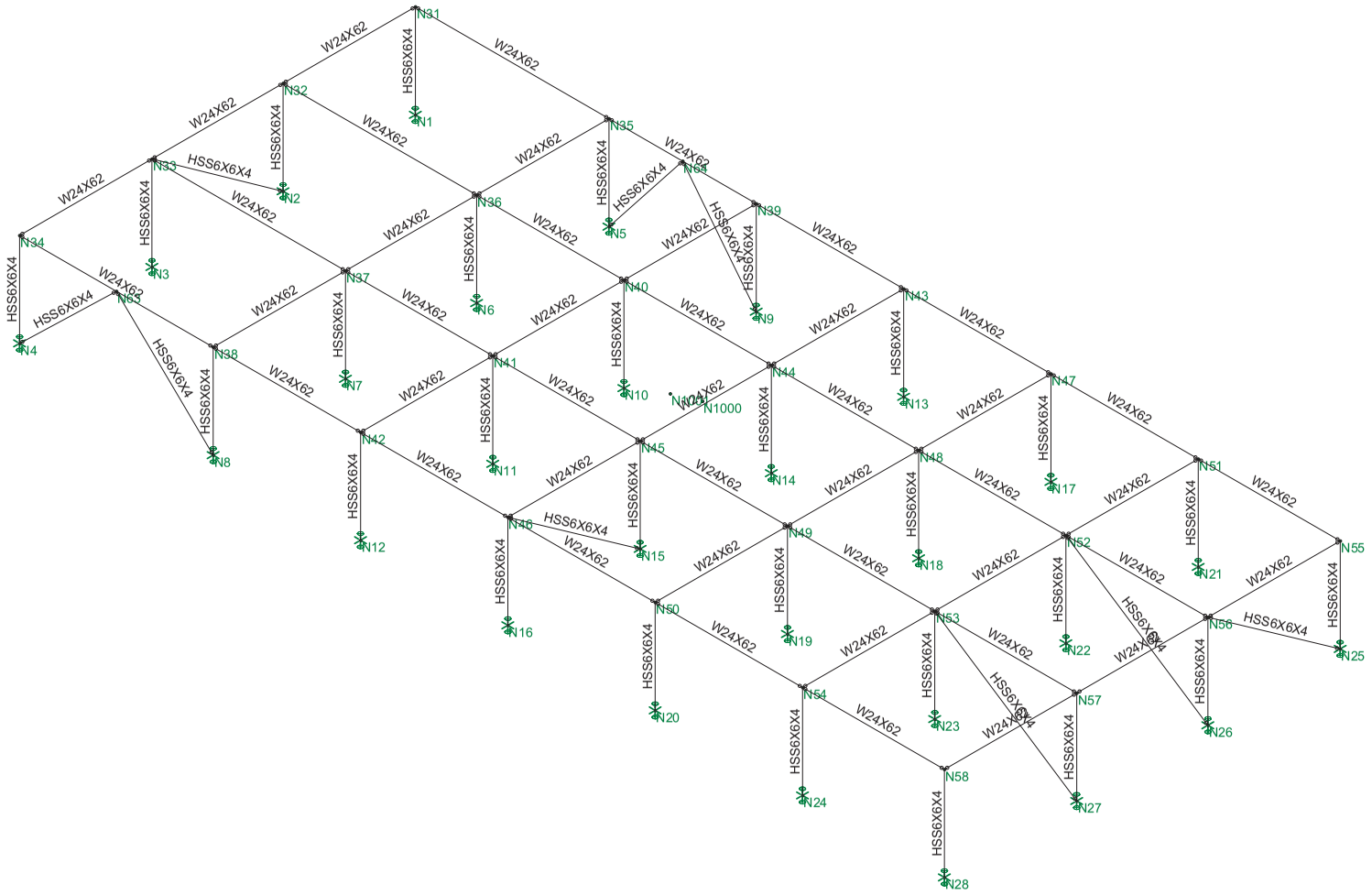
Load Combinations (Continued)

	Description	Sol...	PDelta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
32	Seismic Long	Yes	Y		7	1														



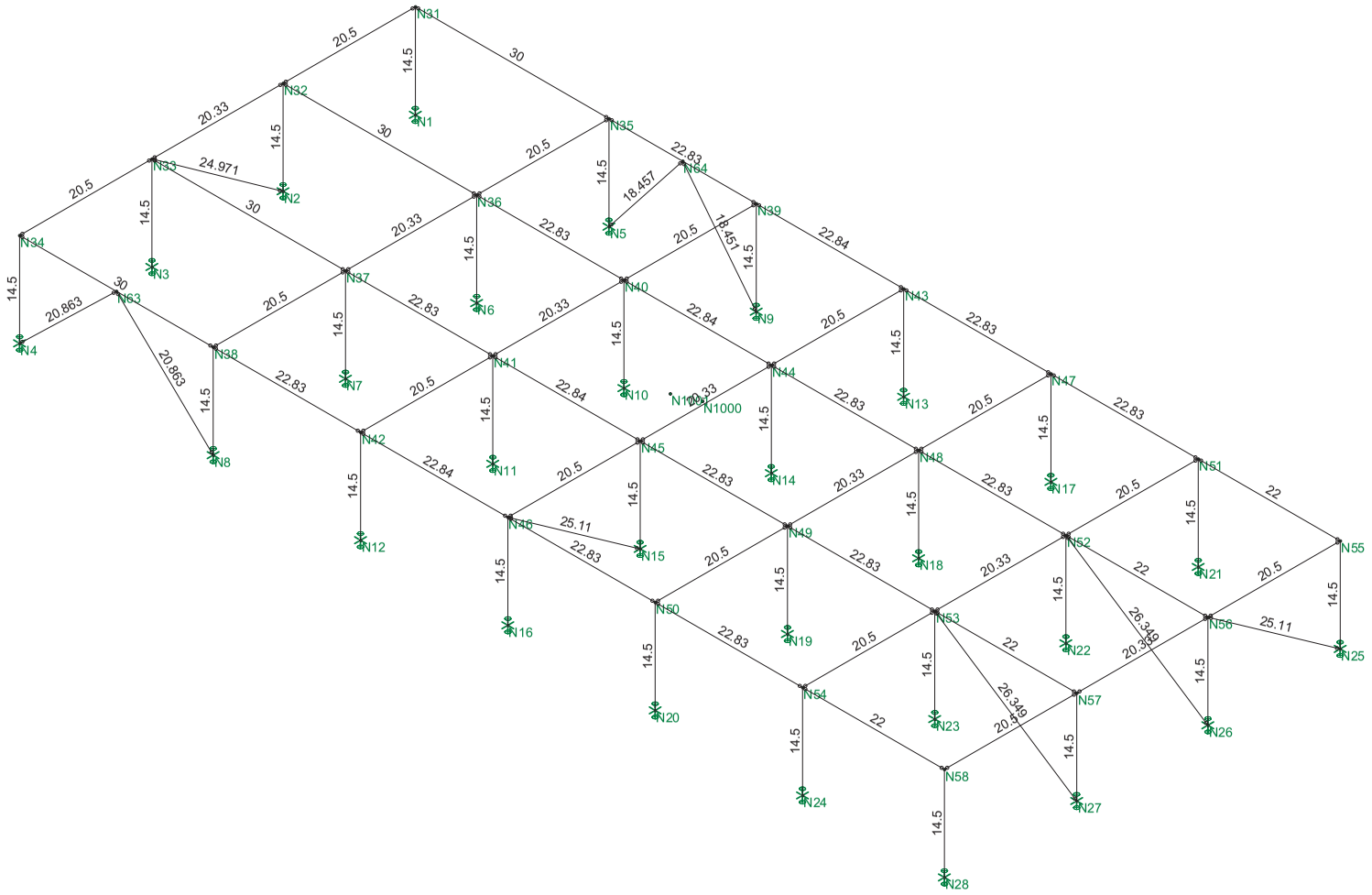
Results for LC 1, LRFD 16-1

Parsons Brinckerhoff	CIC Det 5-9	SK - 7
Paul Oh		May 22, 2012 at 3:23 PM
173133C		Det 5-9 model.r3d



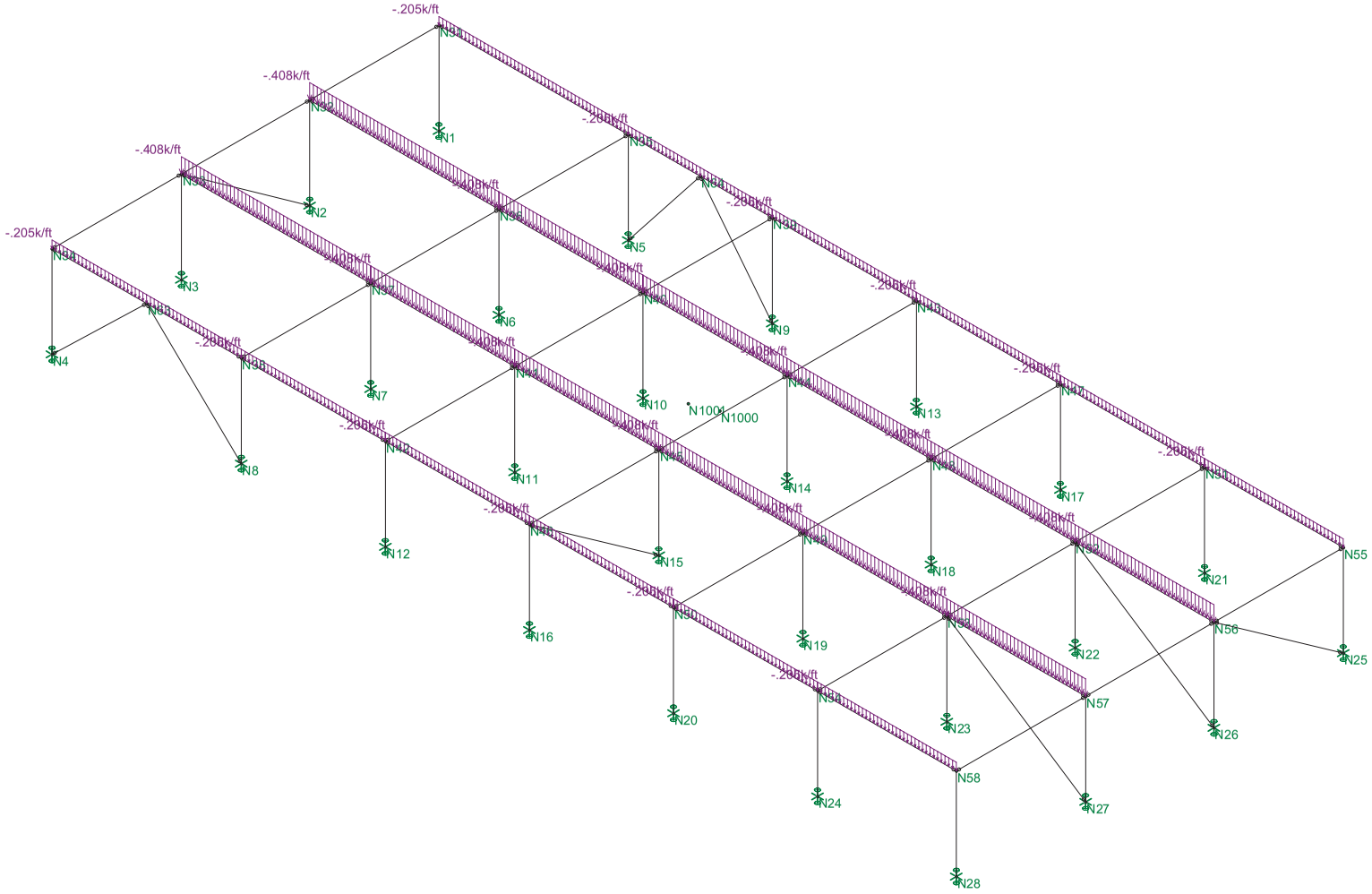
Results for LC 1, LRFD 16-1

Parsons Brinckerhoff	CIC Det 5-9	SK - 8
Paul Oh		May 22, 2012 at 3:28 PM
173133C		Det 5-9 model.r3d



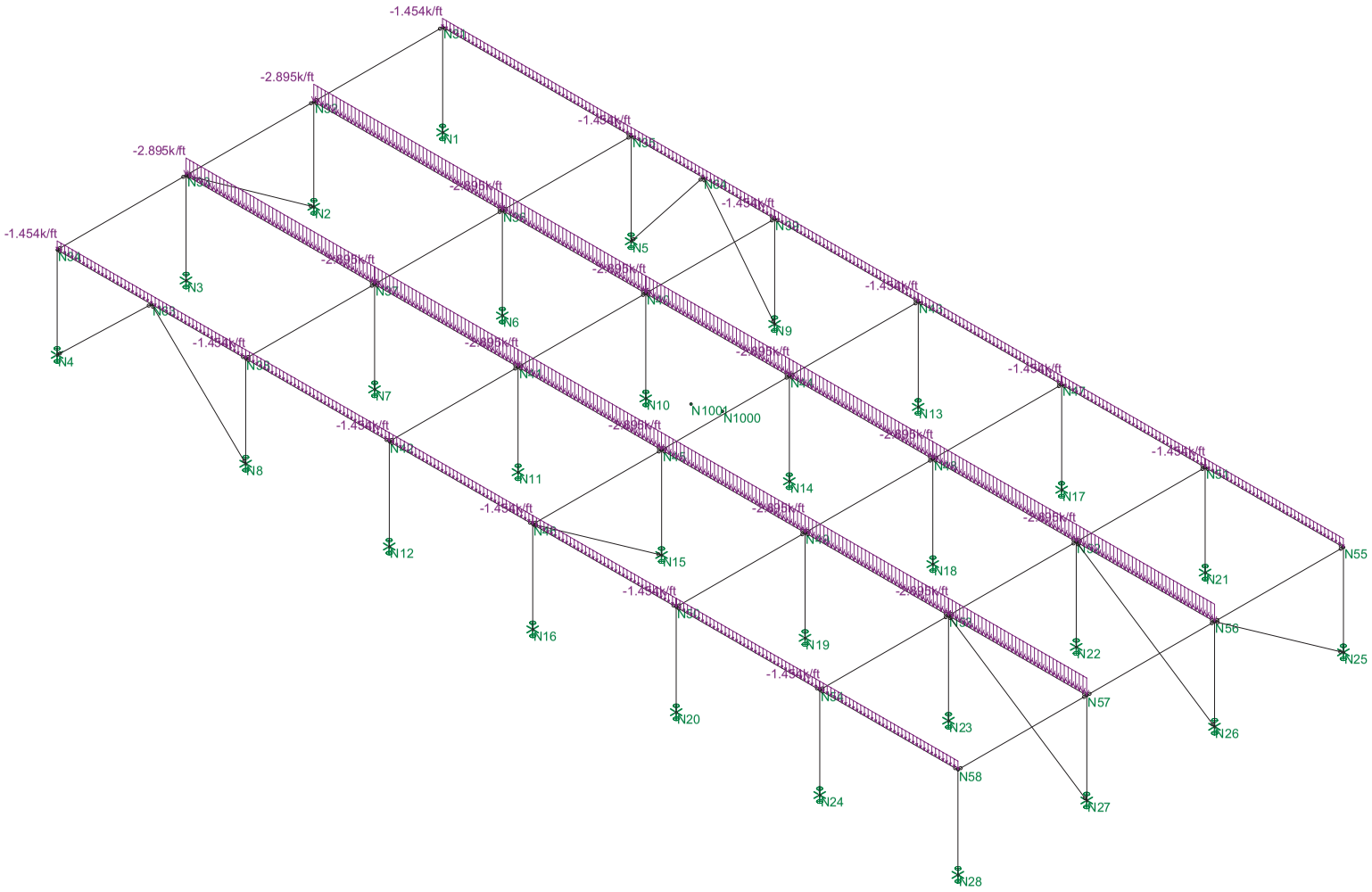
Member Length (ft) Displayed
Results for LC 1, LRFD 16-1

Parsons Brinckerhoff	CIC Det 5-9	SK - 9
Paul Oh		May 22, 2012 at 3:28 PM
173133C		Det 5-9 model.r3d



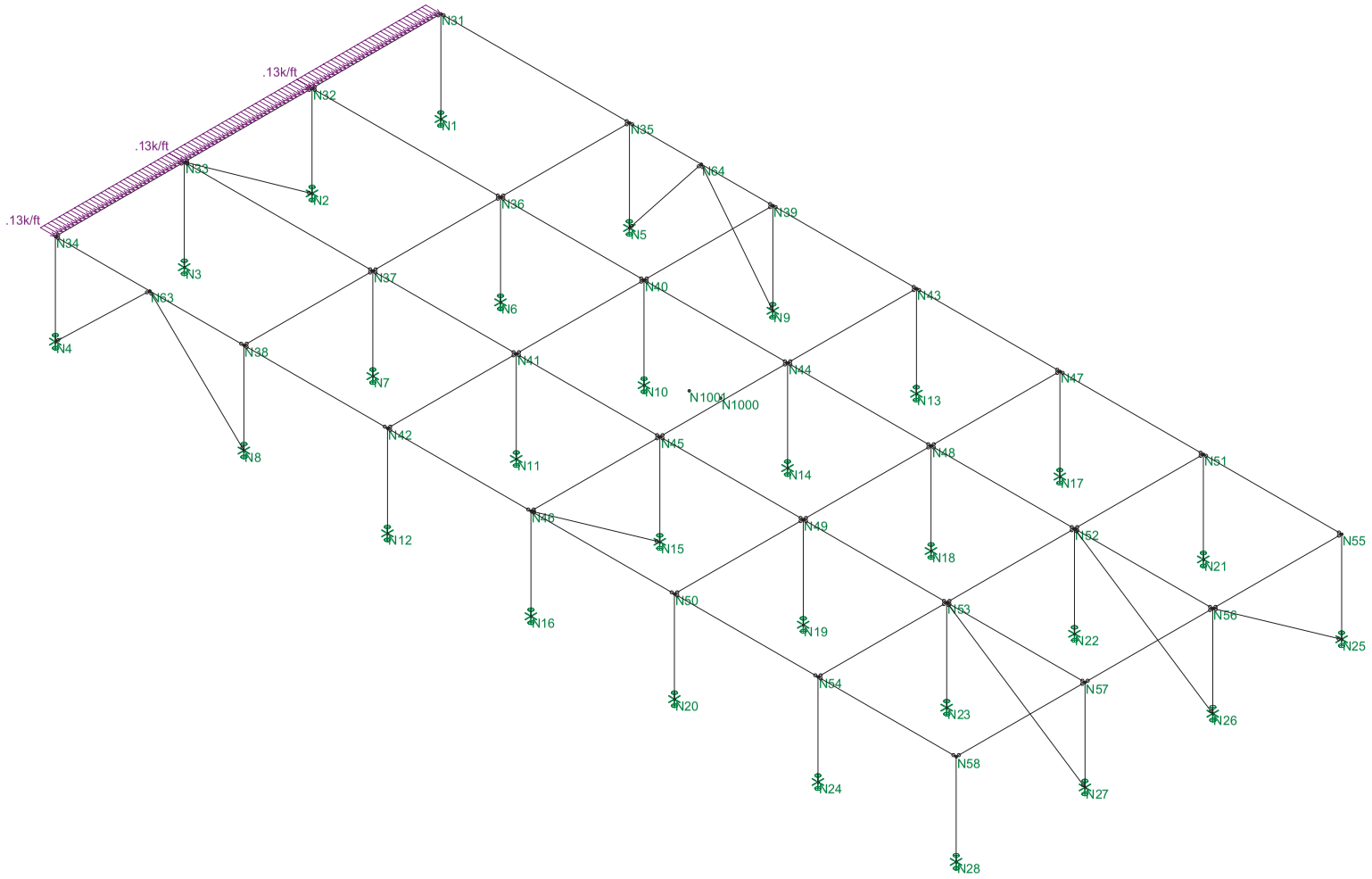
Loads: BLC 2, Roof Live
Results for LC 1, LRFD 16-1

Parsons Brinckerhoff	CIC Det 5-9	SK - 1
Paul Oh		May 22, 2012 at 3:20 PM
173133C		Det 5-9 model.r3d



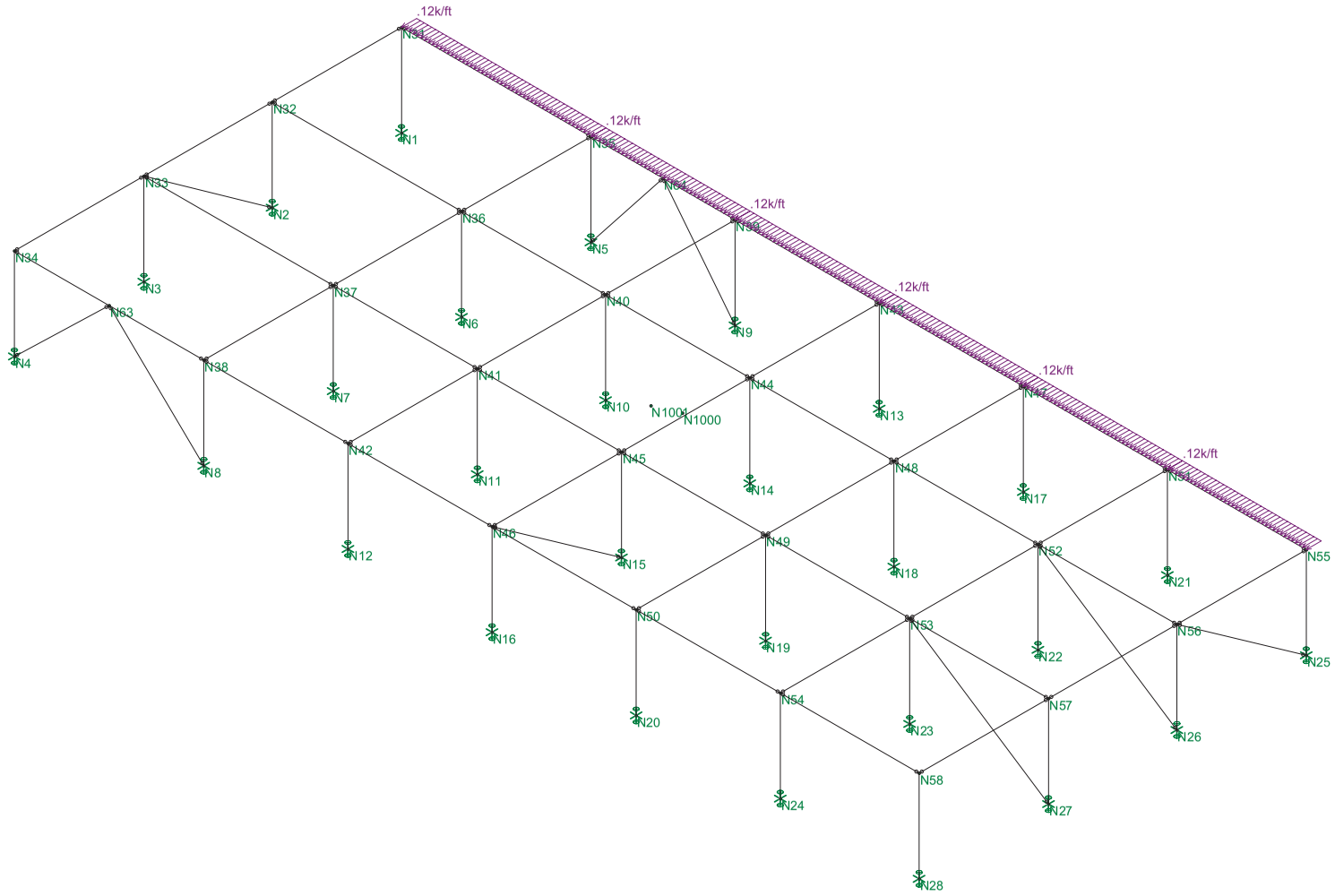
Loads: BLC 3, Superimposed DL
Results for LC 1, LRFD 16-1

Parsons Brinckerhoff	CIC Det 5-9	SK - 2
Paul Oh		May 22, 2012 at 3:21 PM
173133C		Det 5-9 model.r3d



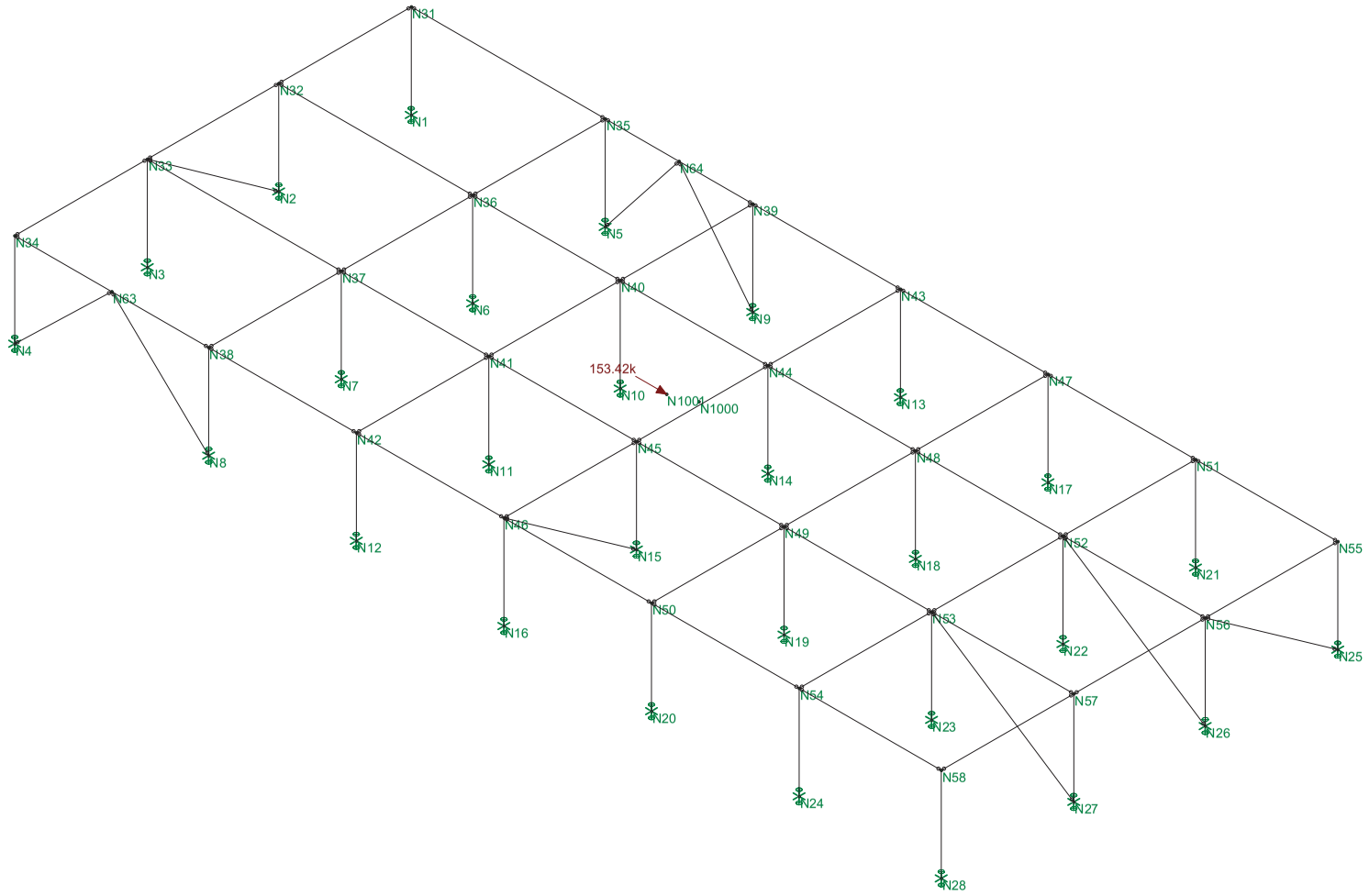
Loads: BLC 4, Wind Trans
Results for LC 1, LRFD 16-1

Parsons Brinckerhoff	CIC Det 5-9	SK - 3
Paul Oh		May 22, 2012 at 3:21 PM
173133C		Det 5-9 model.r3d



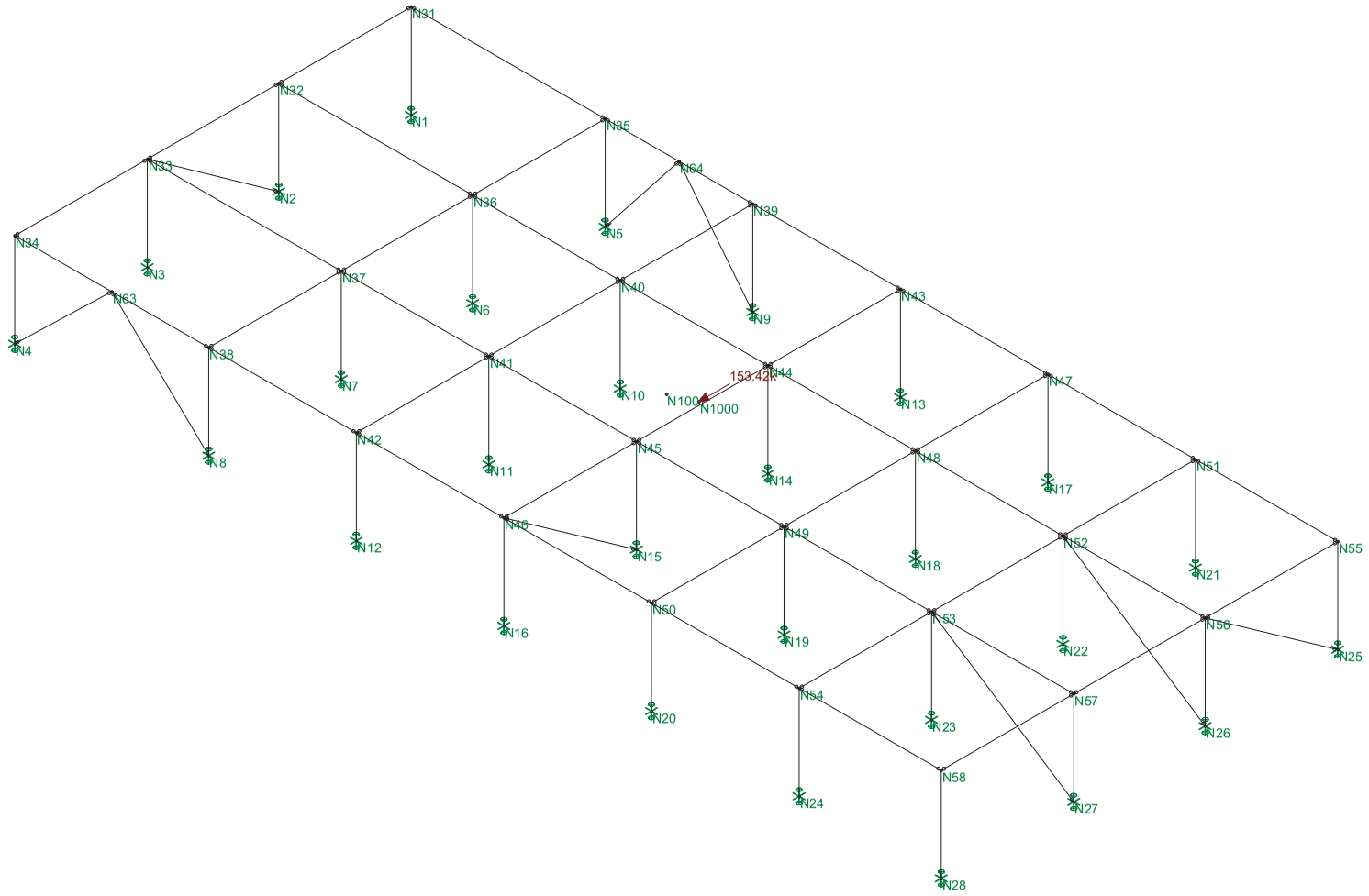
Loads: BLC 5, Wind Long
Results for LC 1, LRFD 16-1

Parsons Brinckerhoff	CIC Det 5-9	SK - 4
Paul Oh		May 22, 2012 at 3:21 PM
173133C		Det 5-9 model.r3d



Loads: BLC 6, Seismic Trans
Results for LC 1, LRFD 16-1

Parsons Brinckerhoff	CIC Det 5-9	SK - 5
Paul Oh		May 22, 2012 at 3:22 PM
173133C		Det 5-9 model.r3d



Loads: BLC 7, Seismic Long
Results for LC 1, LRFD 16-1

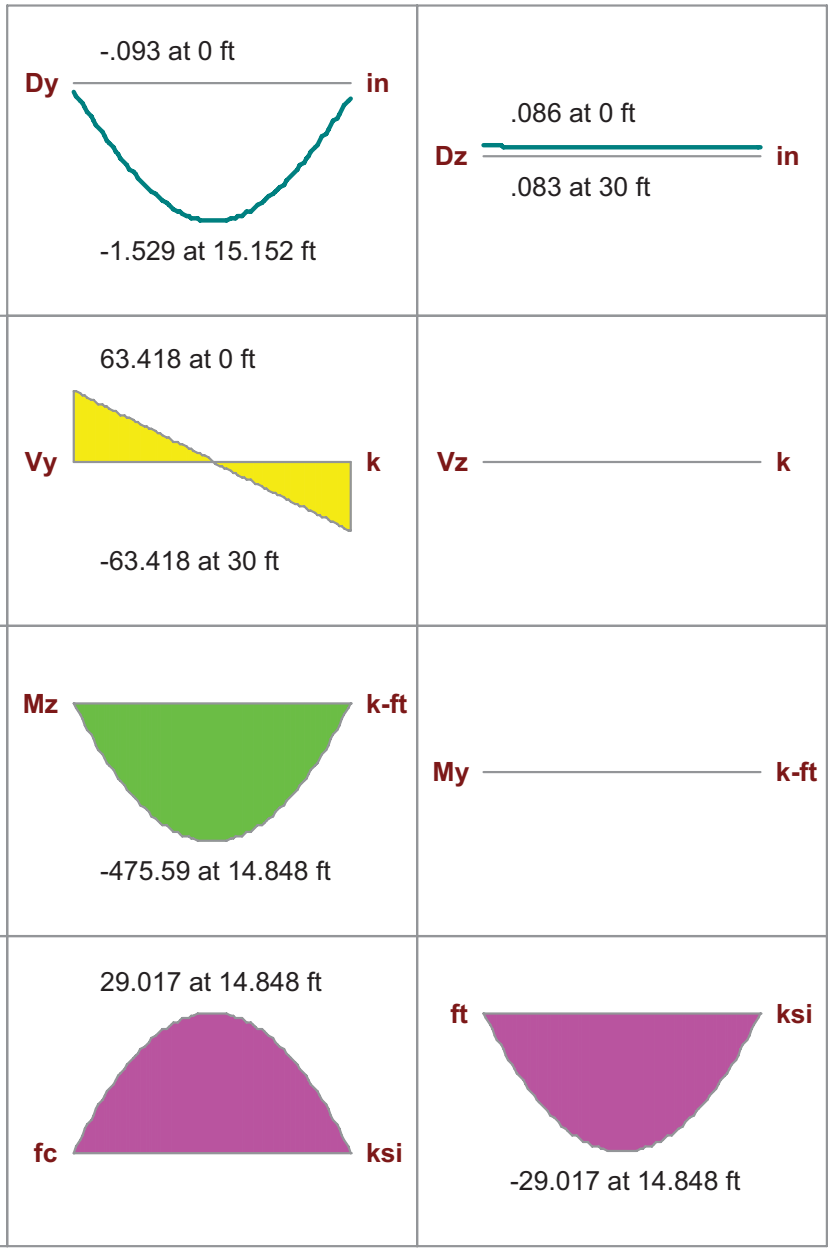
Parsons Brinckerhoff	CIC Det 5-9	SK - 6
Paul Oh		May 22, 2012 at 3:22 PM
173133C		Det 5-9 model.r3d

Drift and Member Size Check

CIC – RA 5-9; Ft. Stewart, Georgia

Beam: ***M65***

Shape: **W24X84**
Material: **A992**
Length: **30 ft**
I Joint: **N32**
J Joint: **N36**
LC 4: LRFD 16-3b
Code Check: **0.566 (bending)**
Report Based On 100 Sections



AISC 13th(360-05): LRFD Code Check

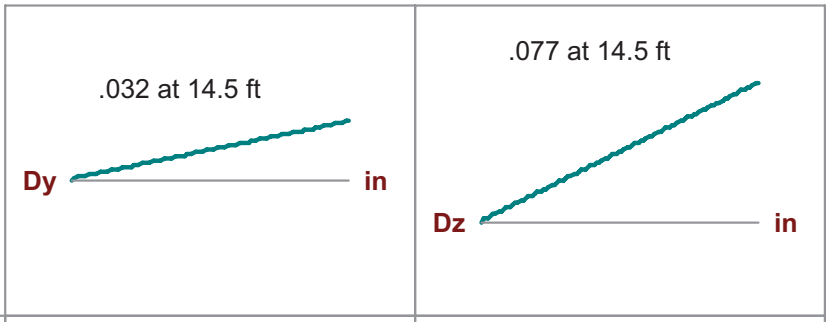
Direct Analysis Method

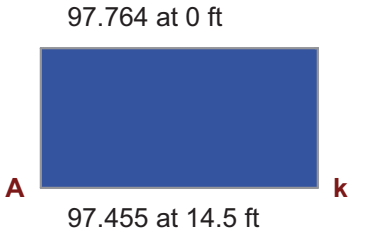
Max Bending Check	**0.566**	Max Shear Check	**0.187 (y)**	
Location	**14.848 ft**	Location	**0 ft**	
Equation	**H1-1b**	Max Defl Ratio	**L/257**	
Bending Flange	**Compact**	Compression Flange	**Non-Slender**	**Qs=1**
Bending Web	**Compact**	Compression Web	**Slender**	**Qa=1**

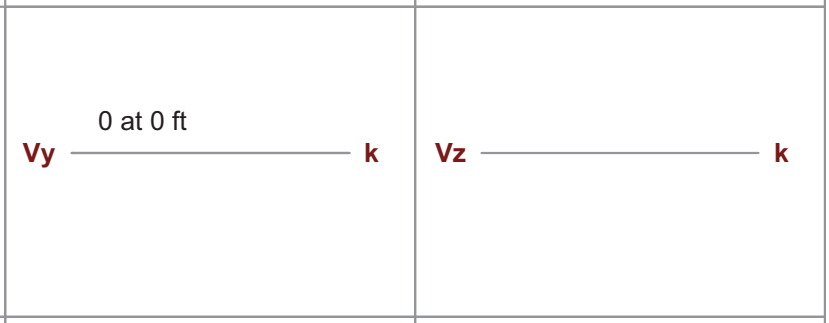
			y-y	z-z
Fy	**50 ksi**	Lb	**30 ft**	**30 ft**
phi*Pnc	**164.553 k**	KL/r	**184.147**	**36.752**
phi*Pnt	**1111.5 k**	Sway	**No**	**No**
phi*Mny	**122.25 k-ft**			
phi*Mnz	**840 k-ft**	L Comp Flange	**3 ft**	
phi*Vny	**339.81 k**	Torque Length	**NC**	
phi*Vnz	**375.052 k**	Tau_b	**1**	
Cb	**1**			

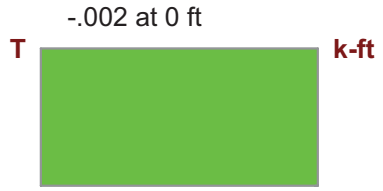
Column: ***M40***

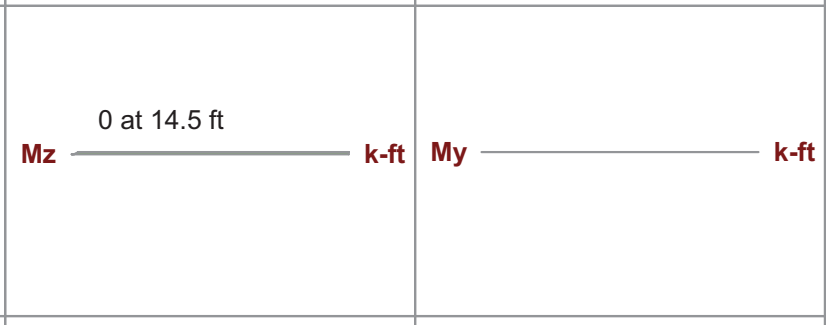
Shape: **HSS6X6X4**
Material: **A500 Gr.46**
Length: **14.5 ft**
I Joint: **N14**
J Joint: **N44**
LC 4: LRFD 16-3b
Code Check: **0.656 (bending)**
Report Based On 100 Sections

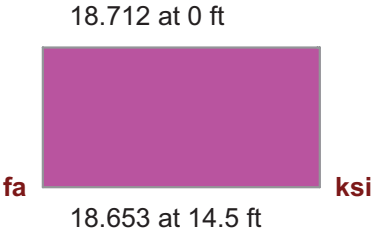


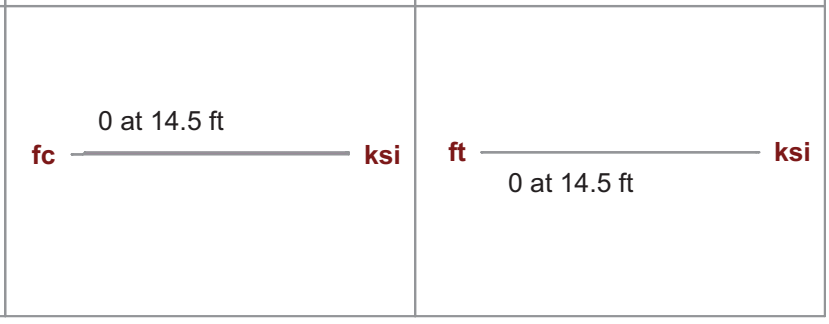












AISC 13th(360-05): LRFD Code Check

Direct Analysis Method

Max Bending Check	**0.656**	Max Shear Check	**0.000 (y)**
Location	**0 ft**	Location	**0 ft**
Equation	**H1-1a**	Max Defl Ratio	**L/10000**
Bending Flange	**Compact**	Compression Flange	**Non-Slender**
Bending Web	**Compact**	Compression Web	**Non-Slender**

Fy	**46 ksi**
phi*Pnc	**149.039 k**
phi*Pnt	**216.297 k**
phi*Mny	**38.625 k-ft**
phi*Mnz	**38.625 k-ft**
phi*Vny	**61.247 k**
phi*Vnz	**61.247 k**
phi*Tn	**31.918 k-ft**
Cb	**1**

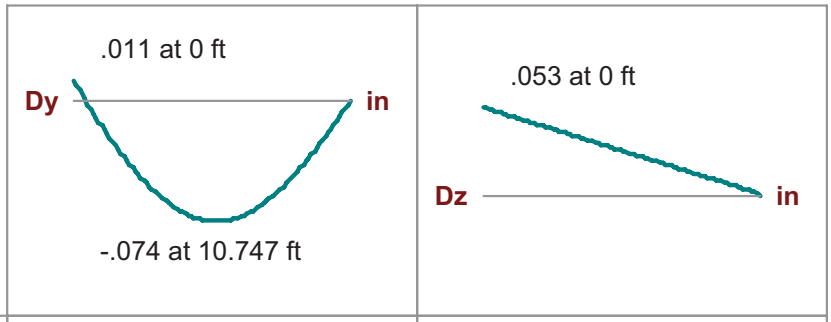
	y-y	z-z
Lb	**14.5 ft**	**14.5 ft**
KL/r	**74.409**	**74.409**
Sway	**No**	**No**

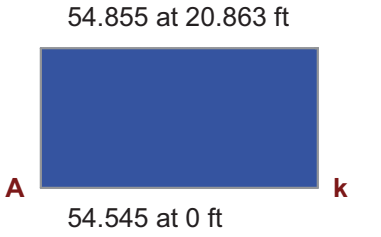
L Comp Flange	**14.5 ft**
Torque Length	**NC**
Tau_b	**1**

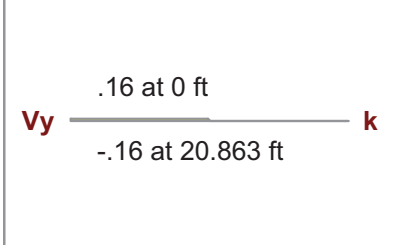
Brace Sample

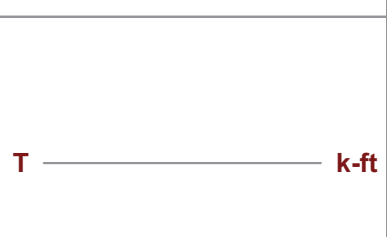
VBrace: ***M55***

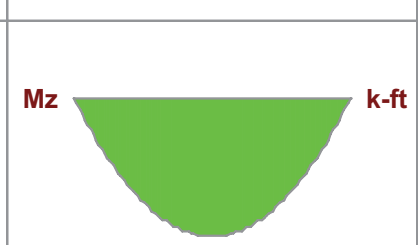
Shape: **HSS6X6X4**
Material: **A500 Gr.46**
Length: **20.863 ft**
I Joint: **N63**
J Joint: **N8**
LC 7: LRFD 16-5a
Code Check: **0.566 (bending)**
Report Based On 100 Sections

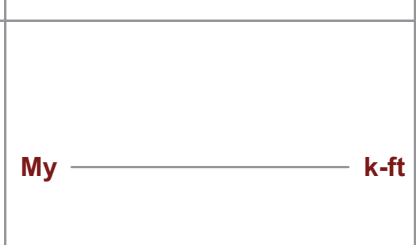


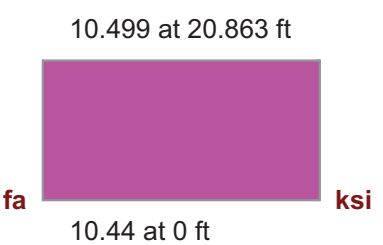


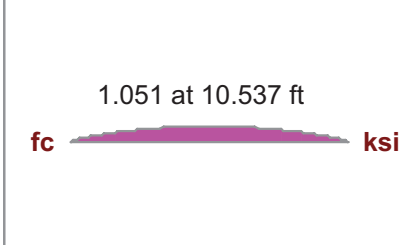


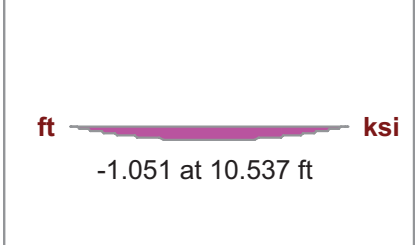












AISC 13th(360-05): LRFD Code Check

Direct Analysis Method

Max Bending Check	**0.566**	Max Shear Check	**0.003 (y)**
Location	**10.747 ft**	Location	**0 ft**
Equation	**H1-1a**	Max Defl Ratio	**L/3173**
Bending Flange	**Compact**	Compression Flange	**Non-Slender**
Bending Web	**Compact**	Compression Web	**Non-Slender**

Fy	**46 ksi**
phi*Pnc	**100.047 k**
phi*Pnt	**216.297 k**
phi*Mny	**38.625 k-ft**
phi*Mnz	**38.625 k-ft**
phi*Vny	**61.247 k**
phi*Vnz	**61.247 k**
phi*Tn	**31.918 k-ft**
Cb	**1.14**

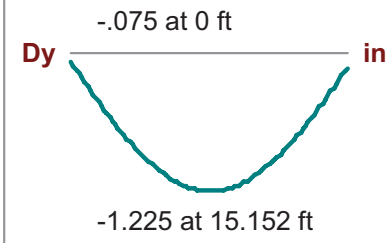
	y-y	z-z
Lb	**20.863 ft**	**20.863 ft**
KL/r	**107.06**	**107.06**
Sway	**No**	**No**

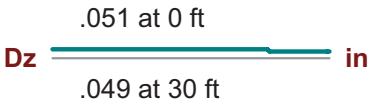
L Comp Flange	**20.863 ft**
Torque Length	**NC**
Tau_b	**1**

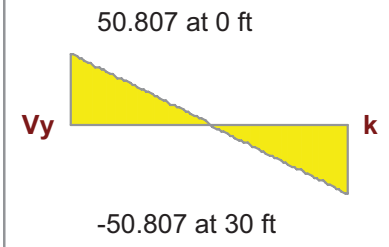
Deflection Check Example

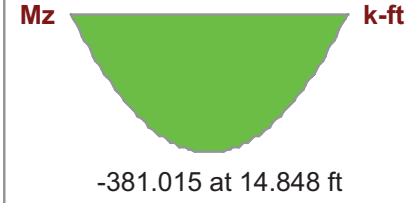
Beam: ***M65***

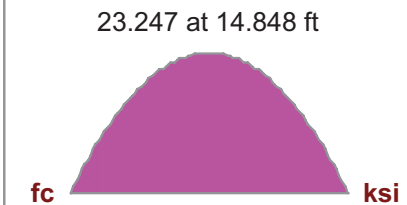
Shape: **W24X84**
Material: **A992**
Length: **30 ft**
I Joint: **N32**
J Joint: **N36**
LC 13: ASD 16-10
Code Check: **No Calc**
Report Based On 100 Sections

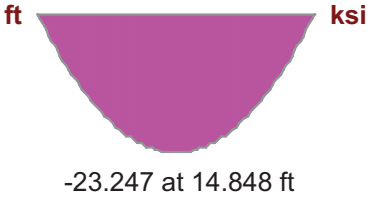












AISC 13th(360-05): LRFD Code Check
Direct Analysis Method

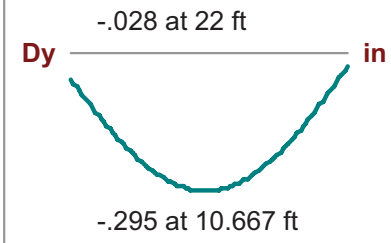
- P-Delta analysis required for all AISC 360-05 Load Combinations -

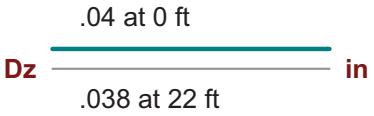
Max Defl Ratio **L/321** Deflection is ok

Deflection Check Example

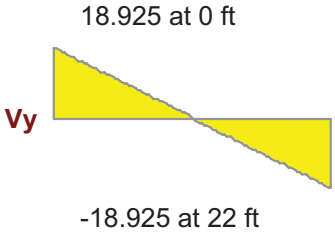
Beam: ***M64***

Shape: **W24X62**
Material: **A992**
Length: **22 ft**
I Joint: **N51**
J Joint: **N55**
LC 13: ASD 16-10
Code Check: **No Calc**
Report Based On 100 Sections



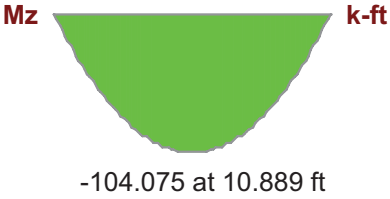


A — k



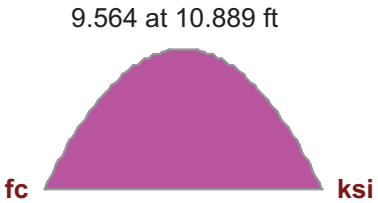
Vz — k

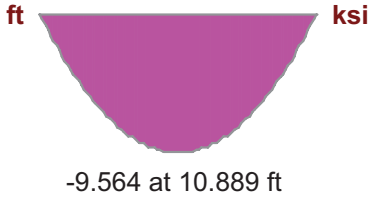
0 at 0 ft
T — k-ft



My — k-ft

fa — ksi





AISC 13th(360-05): LRFD Code Check
Direct Analysis Method

- P-Delta analysis required for all AISC 360-05 Load Combinations -

Max Defl Ratio **L/1047** Deflection is ok

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
1	1	M5	W24X62	.008	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
2	1	M6	W24X62	.008	10.062	.003	20.33	y	130.955	819	58.807	573.75	1	H1-1b
3	1	M7	W24X62	.008	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
4	1	M8	W24X62	.008	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
5	1	M9	W24X62	.008	10.062	.003	20.33	y	130.955	819	58.807	573.75	1	H1-1b
6	1	M10	W24X62	.008	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
7	1	M11	W24X62	.008	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
8	1	M12	W24X62	.008	10.062	.003	20.33	y	130.955	819	58.807	573.75	1	H1-1b
9	1	M13	W24X62	.008	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
10	1	M14	W24X62	.008	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
11	1	M15	W24X62	.008	10.062	.003	20.33	y	130.955	819	58.807	573.75	1	H1-1b
12	1	M16	W24X62	.008	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
13	1	M17	W24X62	.008	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
14	1	M18	W24X62	.008	10.062	.003	20.33	y	130.955	819	58.807	573.75	1	H1-1b
15	1	M19	W24X62	.008	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
16	1	M20	W24X62	.008	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
17	1	M21	W24X62	.008	10.062	.003	20.33	y	130.955	819	58.807	573.75	1	H1-1b
18	1	M22	W24X62	.008	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
19	1	M23	W24X62	.008	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
20	1	M24	W24X62	.008	10.062	.003	20.33	y	130.955	819	58.807	573.75	1	H1-1b
21	1	M25	W24X62	.008	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
22	1	M26	HSS6X6X4	.047	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
23	1	M27	HSS6X6X4	.434	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
24	1	M28	HSS6X6X4	.434	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
25	1	M29	HSS6X6X4	.222	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1a
26	1	M30	HSS6X6X4	.256	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
27	1	M31	HSS6X6X4	.751	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
28	1	M32	HSS6X6X4	.751	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
29	1	M33	HSS6X6X4	.281	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
30	1	M34	HSS6X6X4	.333	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
31	1	M35	HSS6X6X4	.649	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
32	1	M36	HSS6X6X4	.649	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
33	1	M37	HSS6X6X4	.230	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
34	1	M38	HSS6X6X4	.341	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
35	1	M39	HSS6X6X4	.649	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
36	1	M40	HSS6X6X4	.649	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
37	1	M41	HSS6X6X4	.333	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
38	1	M42	HSS6X6X4	.333	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
39	1	M43	HSS6X6X4	.648	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
40	1	M44	HSS6X6X4	.648	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
41	1	M45	HSS6X6X4	.333	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
42	1	M46	HSS6X6X4	.327	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
43	1	M47	HSS6X6X4	.580	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
44	1	M48	HSS6X6X4	.578	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
45	1	M49	HSS6X6X4	.327	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
46	1	M50	HSS6X6X4	.082	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
47	1	M51	HSS6X6X4	.320	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
48	1	M52	HSS6X6X4	.321	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
49	1	M53	HSS6X6X4	.082	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
50	1	M54	HSS6X6X4	.394	10.115	.003	20.863	y	100.047	216.297	38.625	38.625	1.14	H1-1a
51	1	M55	HSS6X6X4	.118	10.537	.003	0	y	100.047	216.297	38.625	38.625	1.14	H1-1b
52	1	M56	HSS6X6X4	.045	12.359	.004	24.971	y	71.878	216.297	38.625	38.625	1.14	H1-1b
53	1	M57	HSS6X6X4	.281	8.762	.002	18.457	y	118.296	216.297	38.625	38.625	1.14	H1-1a
54	1	M58	HSS6X6X4	.053	8.946	.002	0	y	118.344	216.297	38.625	38.625	1.14	H1-1b
55	1	M59	HSS6X6X4	.045	12.682	.004	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
56	1	M60	HSS6X6X4	.300	12.775	.004	0	y	64.559	216.297	38.625	38.625	1.14	H1-1a

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
57	1	M61	HSS6X6X4	.290	12.775	.004	26.349	y	64.559	216.297	38.625	38.625	1.14	H1-1a
58	1	M62	HSS6X6X4	.043	12.428	.004	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
59	1	M59A	W24X62	.416	14.848	.104	0	y	60.139	819	58.807	573.75	1	H1-1b
60	1	M60A	W24X62	.161	11.53	.050	11.53	y	103.845	819	58.807	227.459	1.38	H1-1b
61	1	M61A	W24X62	.241	11.535	.079	22.84	y	103.754	819	58.807	573.75	1	H1-1b
62	1	M62A	W24X62	.241	11.53	.079	22.83	y	103.845	819	58.807	573.75	1	H1-1b
63	1	M63	W24X62	.241	11.53	.079	22.83	y	103.845	819	58.807	573.75	1	H1-1b
64	1	M64	W24X62	.224	10.889	.076	0	y	111.828	819	58.807	573.75	1	H1-1b
65	1	M65	W24X84	.558	14.848	.184	0	y	164.553	1111.5	122.25	840	1	H1-1b
66	1	M66	W24X62	.470	11.3	.154	22.83	y	103.845	819	58.807	573.75	1	H1-1b
67	1	M67	W24X62	.470	11.305	.154	22.84	y	103.754	819	58.807	573.75	1	H1-1b
68	1	M68	W24X62	.470	11.3	.154	22.83	y	103.845	819	58.807	573.75	1	H1-1b
69	1	M69	W24X62	.470	11.3	.154	22.83	y	103.845	819	58.807	573.75	1	H1-1b
70	1	M70	W24X62	.436	10.889	.149	0	y	111.828	819	58.807	573.75	1	H1-1b
71	1	M71	W24X84	.558	14.848	.184	0	y	164.553	1111.5	122.25	840	1	H1-1b
72	1	M72	W24X62	.470	11.3	.154	22.83	y	103.845	819	58.807	573.75	1	H1-1b
73	1	M73	W24X62	.470	11.305	.154	22.84	y	103.754	819	58.807	573.75	1	H1-1b
74	1	M74	W24X62	.470	11.3	.154	22.83	y	103.845	819	58.807	573.75	1	H1-1b
75	1	M75	W24X62	.470	11.3	.154	22.83	y	103.845	819	58.807	573.75	1	H1-1b
76	1	M76	W24X62	.436	10.889	.149	0	y	111.828	819	58.807	573.75	1	H1-1b
77	1	M77	W24X62	.362	14.848	.061	15.152	y	60.139	819	58.807	123.18	1.099	H1-1b
78	1	M78	W24X62	.241	11.53	.079	22.83	y	103.845	819	58.807	573.75	1	H1-1b
79	1	M79	W24X62	.241	11.535	.079	22.84	y	103.754	819	58.807	573.75	1	H1-1b
80	1	M80	W24X62	.241	11.53	.079	22.83	y	103.845	819	58.807	573.75	1	H1-1b
81	1	M81	W24X62	.241	11.53	.079	22.83	y	103.845	819	58.807	573.75	1	H1-1b
82	1	M82	W24X62	.224	10.889	.076	0	y	111.828	819	58.807	573.75	1	H1-1b
83	2	M5	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
84	2	M6	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
85	2	M7	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
86	2	M8	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
87	2	M9	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
88	2	M10	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
89	2	M11	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
90	2	M12	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
91	2	M13	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
92	2	M14	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
93	2	M15	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
94	2	M16	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
95	2	M17	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
96	2	M18	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
97	2	M19	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
98	2	M20	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
99	2	M21	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
100	2	M22	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
101	2	M23	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
102	2	M24	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
103	2	M25	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
104	2	M26	HSS6X6X4	.042	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
105	2	M27	HSS6X6X4	.392	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
106	2	M28	HSS6X6X4	.393	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
107	2	M29	HSS6X6X4	.201	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1a
108	2	M30	HSS6X6X4	.232	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
109	2	M31	HSS6X6X4	.680	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
110	2	M32	HSS6X6X4	.680	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
111	2	M33	HSS6X6X4	.254	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
112	2	M34	HSS6X6X4	.302	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
113	2	M35	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
114	2	M36	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
115	2	M37	HSS6X6X4	.208	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
116	2	M38	HSS6X6X4	.308	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
117	2	M39	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
118	2	M40	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
119	2	M41	HSS6X6X4	.302	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
120	2	M42	HSS6X6X4	.301	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
121	2	M43	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
122	2	M44	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
123	2	M45	HSS6X6X4	.301	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
124	2	M46	HSS6X6X4	.296	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
125	2	M47	HSS6X6X4	.525	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
126	2	M48	HSS6X6X4	.523	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
127	2	M49	HSS6X6X4	.296	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
128	2	M50	HSS6X6X4	.074	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
129	2	M51	HSS6X6X4	.289	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
130	2	M52	HSS6X6X4	.290	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
131	2	M53	HSS6X6X4	.074	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
132	2	M54	HSS6X6X4	.355	10.115	.003	0	y	100.047	216.297	38.625	38.625	1.14	H1-1a
133	2	M55	HSS6X6X4	.105	10.537	.003	0	y	100.047	216.297	38.625	38.625	1.14	H1-1b
134	2	M56	HSS6X6X4	.039	12.359	.004	24.971	y	71.878	216.297	38.625	38.625	1.14	H1-1b
135	2	M57	HSS6X6X4	.253	8.762	.002	18.457	y	118.296	216.297	38.625	38.625	1.14	H1-1a
136	2	M58	HSS6X6X4	.047	8.946	.002	0	y	118.344	216.297	38.625	38.625	1.14	H1-1b
137	2	M59	HSS6X6X4	.038	12.682	.004	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
138	2	M60	HSS6X6X4	.269	12.775	.004	0	y	64.559	216.297	38.625	38.625	1.14	H1-1a
139	2	M61	HSS6X6X4	.260	12.775	.004	26.349	y	64.559	216.297	38.625	38.625	1.14	H1-1a
140	2	M62	HSS6X6X4	.037	12.428	.004	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
141	2	M59A	W24X62	.377	15.152	.094	0	y	60.139	819	58.807	573.75	1	H1-1b
142	2	M60A	W24X62	.145	11.53	.045	11.53	y	103.845	819	58.807	227.392	1.38	H1-1b
143	2	M61A	W24X62	.218	11.305	.072	22.84	y	103.754	819	58.807	573.75	1	H1-1b
144	2	M62A	W24X62	.218	11.53	.072	22.83	y	103.845	819	58.807	573.75	1	H1-1b
145	2	M63	W24X62	.218	11.53	.072	22.83	y	103.845	819	58.807	573.75	1	H1-1b
146	2	M64	W24X62	.203	10.889	.069	0	y	111.828	819	58.807	573.75	1	H1-1b
147	2	M65	W24X84	.506	14.848	.167	0	y	164.553	1111.5	122.25	840	1	H1-1b
148	2	M66	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
149	2	M67	W24X62	.426	11.305	.140	22.84	y	103.754	819	58.807	573.75	1	H1-1b
150	2	M68	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
151	2	M69	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
152	2	M70	W24X62	.396	11.111	.135	0	y	111.828	819	58.807	573.75	1	H1-1b
153	2	M71	W24X84	.506	14.848	.167	0	y	164.553	1111.5	122.25	840	1	H1-1b
154	2	M72	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
155	2	M73	W24X62	.426	11.305	.140	22.84	y	103.754	819	58.807	573.75	1	H1-1b
156	2	M74	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
157	2	M75	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
158	2	M76	W24X62	.396	11.111	.135	0	y	111.828	819	58.807	573.75	1	H1-1b
159	2	M77	W24X62	.328	14.848	.055	15.152	y	60.139	819	58.807	123.171	1.099	H1-1b
160	2	M78	W24X62	.218	11.53	.072	22.83	y	103.845	819	58.807	573.75	1	H1-1b
161	2	M79	W24X62	.218	11.305	.072	22.84	y	103.754	819	58.807	573.75	1	H1-1b
162	2	M80	W24X62	.218	11.53	.072	22.83	y	103.845	819	58.807	573.75	1	H1-1b
163	2	M81	W24X62	.218	11.53	.072	22.83	y	103.845	819	58.807	573.75	1	H1-1b
164	2	M82	W24X62	.203	10.889	.069	0	y	111.828	819	58.807	573.75	1	H1-1b
165	3	M5	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
166	3	M6	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
167	3	M7	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
168	3	M8	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
169	3	M9	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
170	3	M10	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
171	3	M11	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
172	3	M12	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
173	3	M13	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
174	3	M14	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
175	3	M15	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
176	3	M16	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
177	3	M17	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
178	3	M18	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
179	3	M19	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
180	3	M20	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
181	3	M21	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
182	3	M22	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
183	3	M23	W24X62	.100	10.146	.005	20.5	z	128.792	819	58.807	573.75	1	H1-1b
184	3	M24	W24X62	.098	10.268	.005	20.33	z	130.955	819	58.807	573.75	1	H1-1b
185	3	M25	W24X62	.100	10.146	.005	20.5	z	128.792	819	58.807	573.75	1	H1-1b
186	3	M26	HSS6X6X4	.047	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
187	3	M27	HSS6X6X4	.437	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
188	3	M28	HSS6X6X4	.438	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
189	3	M29	HSS6X6X4	.223	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1a
190	3	M30	HSS6X6X4	.258	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
191	3	M31	HSS6X6X4	.760	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
192	3	M32	HSS6X6X4	.760	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
193	3	M33	HSS6X6X4	.283	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
194	3	M34	HSS6X6X4	.336	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
195	3	M35	HSS6X6X4	.656	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
196	3	M36	HSS6X6X4	.656	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
197	3	M37	HSS6X6X4	.231	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
198	3	M38	HSS6X6X4	.343	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
199	3	M39	HSS6X6X4	.656	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
200	3	M40	HSS6X6X4	.656	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
201	3	M41	HSS6X6X4	.336	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
202	3	M42	HSS6X6X4	.336	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
203	3	M43	HSS6X6X4	.656	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
204	3	M44	HSS6X6X4	.656	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
205	3	M45	HSS6X6X4	.336	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
206	3	M46	HSS6X6X4	.330	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
207	3	M47	HSS6X6X4	.581	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
208	3	M48	HSS6X6X4	.579	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
209	3	M49	HSS6X6X4	.330	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
210	3	M50	HSS6X6X4	.083	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
211	3	M51	HSS6X6X4	.322	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
212	3	M52	HSS6X6X4	.324	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
213	3	M53	HSS6X6X4	.083	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
214	3	M54	HSS6X6X4	.379	10.115	.003	20.863	y	100.047	216.297	38.625	38.625	1.14	H1-1a
215	3	M55	HSS6X6X4	.221	10.747	.003	20.863	y	100.047	216.297	38.625	38.625	1.14	H1-1a
216	3	M56	HSS6X6X4	.039	12.359	.004	24.971	y	71.878	216.297	38.625	38.625	1.14	H1-1b
217	3	M57	HSS6X6X4	.268	8.762	.002	0	y	118.296	216.297	38.625	38.625	1.14	H1-1a
218	3	M58	HSS6X6X4	.058	8.946	.002	0	y	118.344	216.297	38.625	38.625	1.14	H1-1b
219	3	M59	HSS6X6X4	.039	12.682	.004	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
220	3	M60	HSS6X6X4	.316	12.775	.004	0	y	64.559	216.297	38.625	38.625	1.14	H1-1a
221	3	M61	HSS6X6X4	.307	12.775	.004	0	y	64.559	216.297	38.625	38.625	1.14	H1-1a
222	3	M62	HSS6X6X4	.036	12.428	.004	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
223	3	M59A	W24X62	.421	14.848	.105	0	y	60.139	819	58.807	573.75	1	H1-1b
224	3	M60A	W24X62	.162	11.53	.050	11.53	y	103.845	819	58.807	227.267	1.379	H1-1b
225	3	M61A	W24X62	.244	11.305	.080	22.84	y	103.754	819	58.807	573.75	1	H1-1b
226	3	M62A	W24X62	.244	11.3	.080	22.83	y	103.845	819	58.807	573.75	1	H1-1b
227	3	M63	W24X62	.244	11.3	.080	22.83	y	103.845	819	58.807	573.75	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
228	3	M64	W24X62	.226	10.889	.077	0	y	111.828	819	58.807	573.75	1	H1-1b
229	3	M65	W24X84	.566	14.848	.187	0	y	164.553	1111.5	122.25	840	1	H1-1b
230	3	M66	W24X62	.477	11.3	.157	22.83	y	103.845	819	58.807	573.75	1	H1-1b
231	3	M67	W24X62	.477	11.305	.157	22.84	y	103.754	819	58.807	573.75	1	H1-1b
232	3	M68	W24X62	.477	11.3	.157	22.83	y	103.845	819	58.807	573.75	1	H1-1b
233	3	M69	W24X62	.477	11.3	.157	22.83	y	103.845	819	58.807	573.75	1	H1-1b
234	3	M70	W24X62	.443	10.889	.151	0	y	111.828	819	58.807	573.75	1	H1-1b
235	3	M71	W24X84	.566	14.848	.187	0	y	164.553	1111.5	122.25	840	1	H1-1b
236	3	M72	W24X62	.477	11.3	.157	22.83	y	103.845	819	58.807	573.75	1	H1-1b
237	3	M73	W24X62	.477	11.305	.157	22.84	y	103.754	819	58.807	573.75	1	H1-1b
238	3	M74	W24X62	.477	11.3	.157	22.83	y	103.845	819	58.807	573.75	1	H1-1b
239	3	M75	W24X62	.477	11.3	.157	22.83	y	103.845	819	58.807	573.75	1	H1-1b
240	3	M76	W24X62	.443	10.889	.151	0	y	111.828	819	58.807	573.75	1	H1-1b
241	3	M77	W24X62	.366	14.848	.062	15.152	y	60.139	819	58.807	123.15	1.099	H1-1b
242	3	M78	W24X62	.244	11.3	.080	22.83	y	103.845	819	58.807	573.75	1	H1-1b
243	3	M79	W24X62	.244	11.305	.080	22.84	y	103.754	819	58.807	573.75	1	H1-1b
244	3	M80	W24X62	.244	11.3	.080	22.83	y	103.845	819	58.807	573.75	1	H1-1b
245	3	M81	W24X62	.244	11.3	.080	22.83	y	103.845	819	58.807	573.75	1	H1-1b
246	3	M82	W24X62	.226	10.889	.077	0	y	111.828	819	58.807	573.75	1	H1-1b
247	4	M5	W24X62	.007	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
248	4	M6	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
249	4	M7	W24X62	.007	10.354	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
250	4	M8	W24X62	.007	10.354	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
251	4	M9	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
252	4	M10	W24X62	.007	10.354	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
253	4	M11	W24X62	.007	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
254	4	M12	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
255	4	M13	W24X62	.007	10.354	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
256	4	M14	W24X62	.007	10.354	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
257	4	M15	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
258	4	M16	W24X62	.007	10.354	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
259	4	M17	W24X62	.007	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
260	4	M18	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
261	4	M19	W24X62	.007	10.354	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
262	4	M20	W24X62	.007	10.354	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
263	4	M21	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
264	4	M22	W24X62	.007	10.146	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
265	4	M23	W24X62	.007	10.354	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
266	4	M24	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
267	4	M25	W24X62	.007	10.354	.003	20.5	y	128.792	819	58.807	573.75	1	H1-1b
268	4	M26	HSS6X6X4	.047	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
269	4	M27	HSS6X6X4	.460	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
270	4	M28	HSS6X6X4	.438	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
271	4	M29	HSS6X6X4	.223	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1a
272	4	M30	HSS6X6X4	.258	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
273	4	M31	HSS6X6X4	.760	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
274	4	M32	HSS6X6X4	.760	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
275	4	M33	HSS6X6X4	.283	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
276	4	M34	HSS6X6X4	.336	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
277	4	M35	HSS6X6X4	.656	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
278	4	M36	HSS6X6X4	.656	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
279	4	M37	HSS6X6X4	.231	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
280	4	M38	HSS6X6X4	.366	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
281	4	M39	HSS6X6X4	.656	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
282	4	M40	HSS6X6X4	.656	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
283	4	M41	HSS6X6X4	.336	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
284	4	M42	HSS6X6X4	.336	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
285	4	M43	HSS6X6X4	.656	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
286	4	M44	HSS6X6X4	.656	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
287	4	M45	HSS6X6X4	.336	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
288	4	M46	HSS6X6X4	.330	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
289	4	M47	HSS6X6X4	.586	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
290	4	M48	HSS6X6X4	.584	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
291	4	M49	HSS6X6X4	.330	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
292	4	M50	HSS6X6X4	.083	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
293	4	M51	HSS6X6X4	.322	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
294	4	M52	HSS6X6X4	.345	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
295	4	M53	HSS6X6X4	.083	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
296	4	M54	HSS6X6X4	.394	10.115	.003	0	y	100.047	216.297	38.625	38.625	1.14	H1-1a
297	4	M55	HSS6X6X4	.115	10.537	.003	0	y	100.047	216.297	38.625	38.625	1.14	H1-1b
298	4	M56	HSS6X6X4	.047	12.612	.004	24.971	y	71.878	216.297	38.625	38.625	1.14	H1-1b
299	4	M57	HSS6X6X4	.282	8.762	.002	18.457	y	118.296	216.297	38.625	38.625	1.14	H1-1a
300	4	M58	HSS6X6X4	.050	8.946	.002	0	y	118.344	216.297	38.625	38.625	1.14	H1-1b
301	4	M59	HSS6X6X4	.052	12.682	.004	0	y	71.087	216.297	38.625	38.625	1.14	H1-1b
302	4	M60	HSS6X6X4	.297	12.775	.004	26.349	y	64.559	216.297	38.625	38.625	1.14	H1-1a
303	4	M61	HSS6X6X4	.286	12.775	.004	26.349	y	64.559	216.297	38.625	38.625	1.14	H1-1a
304	4	M62	HSS6X6X4	.048	12.682	.004	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
305	4	M59A	W24X62	.604	14.848	.105	0	y	60.139	819	58.807	573.75	1	H1-1b
306	4	M60A	W24X62	.188	11.53	.050	11.53	y	103.845	819	58.807	227.267	1.379	H1-1b
307	4	M61A	W24X62	.350	11.305	.080	22.84	y	103.754	819	58.807	573.75	1	H1-1b
308	4	M62A	W24X62	.350	11.3	.080	22.83	y	103.845	819	58.807	573.75	1	H1-1b
309	4	M63	W24X62	.350	11.3	.080	22.83	y	103.845	819	58.807	573.75	1	H1-1b
310	4	M64	W24X62	.325	10.889	.077	0	y	111.828	819	58.807	573.75	1	H1-1b
311	4	M65	W24X84	.566	14.848	.187	0	y	164.553	1111.5	122.25	840	1	H1-1b
312	4	M66	W24X62	.477	11.3	.157	22.83	y	103.845	819	58.807	573.75	1	H1-1b
313	4	M67	W24X62	.477	11.305	.157	22.84	y	103.754	819	58.807	573.75	1	H1-1b
314	4	M68	W24X62	.477	11.3	.157	22.83	y	103.845	819	58.807	573.75	1	H1-1b
315	4	M69	W24X62	.477	11.3	.157	22.83	y	103.845	819	58.807	573.75	1	H1-1b
316	4	M70	W24X62	.443	10.889	.151	0	y	111.828	819	58.807	573.75	1	H1-1b
317	4	M71	W24X84	.566	14.848	.187	0	y	164.553	1111.5	122.25	840	1	H1-1b
318	4	M72	W24X62	.477	11.3	.157	22.83	y	103.845	819	58.807	573.75	1	H1-1b
319	4	M73	W24X62	.477	11.305	.157	22.84	y	103.754	819	58.807	573.75	1	H1-1b
320	4	M74	W24X62	.477	11.3	.157	22.83	y	103.845	819	58.807	573.75	1	H1-1b
321	4	M75	W24X62	.477	11.3	.157	22.83	y	103.845	819	58.807	573.75	1	H1-1b
322	4	M76	W24X62	.443	10.889	.151	0	y	111.828	819	58.807	573.75	1	H1-1b
323	4	M77	W24X62	.366	14.848	.062	15.152	y	60.139	819	58.807	123.15	1.099	H1-1b
324	4	M78	W24X62	.244	11.3	.080	22.83	y	103.845	819	58.807	573.75	1	H1-1b
325	4	M79	W24X62	.244	11.305	.080	22.84	y	103.754	819	58.807	573.75	1	H1-1b
326	4	M80	W24X62	.244	11.3	.080	22.83	y	103.845	819	58.807	573.75	1	H1-1b
327	4	M81	W24X62	.244	11.3	.080	22.83	y	103.845	819	58.807	573.75	1	H1-1b
328	4	M82	W24X62	.226	10.889	.077	0	y	111.828	819	58.807	573.75	1	H1-1b
329	5	M5	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
330	5	M6	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
331	5	M7	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
332	5	M8	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
333	5	M9	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
334	5	M10	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
335	5	M11	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
336	5	M12	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
337	5	M13	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
338	5	M14	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
339	5	M15	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
340	5	M16	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
341	5	M17	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
342	5	M18	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
343	5	M19	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
344	5	M20	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
345	5	M21	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
346	5	M22	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
347	5	M23	W24X62	.193	10.146	.010	20.5	z	128.792	819	58.807	573.75	1	H1-1b
348	5	M24	W24X62	.189	10.268	.009	20.33	z	130.955	819	58.807	573.75	1	H1-1b
349	5	M25	W24X62	.193	10.146	.010	20.5	z	128.792	819	58.807	573.75	1	H1-1b
350	5	M26	HSS6X6X4	.042	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
351	5	M27	HSS6X6X4	.392	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
352	5	M28	HSS6X6X4	.393	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
353	5	M29	HSS6X6X4	.201	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1a
354	5	M30	HSS6X6X4	.232	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
355	5	M31	HSS6X6X4	.680	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
356	5	M32	HSS6X6X4	.680	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
357	5	M33	HSS6X6X4	.254	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
358	5	M34	HSS6X6X4	.302	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
359	5	M35	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
360	5	M36	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
361	5	M37	HSS6X6X4	.208	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
362	5	M38	HSS6X6X4	.308	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
363	5	M39	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
364	5	M40	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
365	5	M41	HSS6X6X4	.302	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
366	5	M42	HSS6X6X4	.301	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
367	5	M43	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
368	5	M44	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
369	5	M45	HSS6X6X4	.301	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
370	5	M46	HSS6X6X4	.296	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
371	5	M47	HSS6X6X4	.515	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
372	5	M48	HSS6X6X4	.513	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
373	5	M49	HSS6X6X4	.296	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
374	5	M50	HSS6X6X4	.074	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
375	5	M51	HSS6X6X4	.289	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
376	5	M52	HSS6X6X4	.291	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
377	5	M53	HSS6X6X4	.074	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
378	5	M54	HSS6X6X4	.324	10.115	.003	20.863	y	100.047	216.297	38.625	38.625	1.14	H1-1a
379	5	M55	HSS6X6X4	.209	18.123	.003	0	y	100.047	216.297	38.625	38.625	1.14	H1-1a
380	5	M56	HSS6X6X4	.040	12.359	.004	24.971	y	71.878	216.297	38.625	38.625	1.14	H1-1b
381	5	M57	HSS6X6X4	.226	8.762	.002	18.457	y	118.296	216.297	38.625	38.625	1.14	H1-1a
382	5	M58	HSS6X6X4	.061	8.946	.002	0	y	118.344	216.297	38.625	38.625	1.14	H1-1b
383	5	M59	HSS6X6X4	.038	12.682	.004	0	y	71.087	216.297	38.625	38.625	1.14	H1-1b
384	5	M60	HSS6X6X4	.309	12.775	.004	0	y	64.559	216.297	38.625	38.625	1.14	H1-1a
385	5	M61	HSS6X6X4	.300	12.775	.004	26.349	y	64.559	216.297	38.625	38.625	1.14	H1-1a
386	5	M62	HSS6X6X4	.036	12.428	.004	0	y	71.087	216.297	38.625	38.625	1.14	H1-1b
387	5	M59A	W24X62	.377	15.152	.094	0	y	60.139	819	58.807	573.75	1	H1-1b
388	5	M60A	W24X62	.145	11.53	.045	11.53	y	103.845	819	58.807	227.391	1.38	H1-1b
389	5	M61A	W24X62	.218	11.305	.072	22.84	y	103.754	819	58.807	573.75	1	H1-1b
390	5	M62A	W24X62	.218	11.53	.072	22.83	y	103.845	819	58.807	573.75	1	H1-1b
391	5	M63	W24X62	.218	11.53	.072	22.83	y	103.845	819	58.807	573.75	1	H1-1b
392	5	M64	W24X62	.203	10.889	.069	0	y	111.828	819	58.807	573.75	1	H1-1b
393	5	M65	W24X84	.506	14.848	.167	0	y	164.553	1111.5	122.25	840	1	H1-1b
394	5	M66	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
395	5	M67	W24X62	.426	11.305	.140	22.84	y	103.754	819	58.807	573.75	1	H1-1b
396	5	M68	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
397	5	M69	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
398	5	M70	W24X62	.396	11.111	.135	0	y	111.828	819	58.807	573.75	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
399	5	M71	W24X84	.506	14.848	.167	0	y	164.553	1111.5	122.25	840	1	H1-1b
400	5	M72	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
401	5	M73	W24X62	.426	11.305	.140	22.84	y	103.754	819	58.807	573.75	1	H1-1b
402	5	M74	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
403	5	M75	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
404	5	M76	W24X62	.396	11.111	.135	0	y	111.828	819	58.807	573.75	1	H1-1b
405	5	M77	W24X62	.328	14.848	.055	15.152	y	60.139	819	58.807	123.17	1.099	H1-1b
406	5	M78	W24X62	.218	11.53	.072	22.83	y	103.845	819	58.807	573.75	1	H1-1b
407	5	M79	W24X62	.218	11.305	.072	22.84	y	103.754	819	58.807	573.75	1	H1-1b
408	5	M80	W24X62	.218	11.53	.072	22.83	y	103.845	819	58.807	573.75	1	H1-1b
409	5	M81	W24X62	.218	11.53	.072	22.83	y	103.845	819	58.807	573.75	1	H1-1b
410	5	M82	W24X62	.203	10.889	.069	0	y	111.828	819	58.807	573.75	1	H1-1b
411	6	M5	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
412	6	M6	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
413	6	M7	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
414	6	M8	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
415	6	M9	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
416	6	M10	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
417	6	M11	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
418	6	M12	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
419	6	M13	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
420	6	M14	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
421	6	M15	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
422	6	M16	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
423	6	M17	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
424	6	M18	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
425	6	M19	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
426	6	M20	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
427	6	M21	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
428	6	M22	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
429	6	M23	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
430	6	M24	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
431	6	M25	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
432	6	M26	HSS6X6X4	.042	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
433	6	M27	HSS6X6X4	.438	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
434	6	M28	HSS6X6X4	.393	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
435	6	M29	HSS6X6X4	.201	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1a
436	6	M30	HSS6X6X4	.232	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
437	6	M31	HSS6X6X4	.680	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
438	6	M32	HSS6X6X4	.680	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
439	6	M33	HSS6X6X4	.254	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
440	6	M34	HSS6X6X4	.302	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
441	6	M35	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
442	6	M36	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
443	6	M37	HSS6X6X4	.208	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
444	6	M38	HSS6X6X4	.352	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
445	6	M39	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
446	6	M40	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
447	6	M41	HSS6X6X4	.302	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
448	6	M42	HSS6X6X4	.301	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
449	6	M43	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
450	6	M44	HSS6X6X4	.587	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
451	6	M45	HSS6X6X4	.301	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
452	6	M46	HSS6X6X4	.296	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
453	6	M47	HSS6X6X4	.525	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
454	6	M48	HSS6X6X4	.523	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
455	6	M49	HSS6X6X4	.296	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
456	6	M50	HSS6X6X4	.074	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
457	6	M51	HSS6X6X4	.289	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
458	6	M52	HSS6X6X4	.334	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
459	6	M53	HSS6X6X4	.074	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
460	6	M54	HSS6X6X4	.354	10.115	.003	20.863	y	100.047	216.297	38.625	38.625	1.14	H1-1a
461	6	M55	HSS6X6X4	.106	10.537	.003	0	y	100.047	216.297	38.625	38.625	1.14	H1-1b
462	6	M56	HSS6X6X4	.061	12.612	.004	24.971	y	71.878	216.297	38.625	38.625	1.14	H1-1b
463	6	M57	HSS6X6X4	.254	8.762	.002	18.457	y	118.296	216.297	38.625	38.625	1.14	H1-1a
464	6	M58	HSS6X6X4	.046	8.946	.002	0	y	118.344	216.297	38.625	38.625	1.14	H1-1b
465	6	M59	HSS6X6X4	.065	12.682	.004	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
466	6	M60	HSS6X6X4	.270	12.775	.004	26.349	y	64.559	216.297	38.625	38.625	1.14	H1-1a
467	6	M61	HSS6X6X4	.260	12.775	.004	26.349	y	64.559	216.297	38.625	38.625	1.14	H1-1a
468	6	M62	HSS6X6X4	.061	12.682	.004	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
469	6	M59A	W24X62	.744	14.848	.094	0	y	60.139	819	58.807	573.75	1	H1-1b
470	6	M60A	W24X62	.196	11.53	.045	11.53	y	103.845	819	58.807	227.392	1.38	H1-1b
471	6	M61A	W24X62	.431	11.305	.072	22.84	y	103.754	819	58.807	573.75	1	H1-1b
472	6	M62A	W24X62	.431	11.53	.072	22.83	y	103.845	819	58.807	573.75	1	H1-1b
473	6	M63	W24X62	.431	11.53	.072	22.83	y	103.845	819	58.807	573.75	1	H1-1b
474	6	M64	W24X62	.400	10.889	.069	0	y	111.828	819	58.807	573.75	1	H1-1b
475	6	M65	W24X84	.506	14.848	.167	0	y	164.553	1111.5	122.25	840	1	H1-1b
476	6	M66	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
477	6	M67	W24X62	.426	11.305	.140	22.84	y	103.754	819	58.807	573.75	1	H1-1b
478	6	M68	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
479	6	M69	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
480	6	M70	W24X62	.396	11.111	.135	0	y	111.828	819	58.807	573.75	1	H1-1b
481	6	M71	W24X84	.506	14.848	.167	0	y	164.553	1111.5	122.25	840	1	H1-1b
482	6	M72	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
483	6	M73	W24X62	.426	11.305	.140	22.84	y	103.754	819	58.807	573.75	1	H1-1b
484	6	M74	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
485	6	M75	W24X62	.426	11.3	.140	22.83	y	103.845	819	58.807	573.75	1	H1-1b
486	6	M76	W24X62	.396	11.111	.135	0	y	111.828	819	58.807	573.75	1	H1-1b
487	6	M77	W24X62	.328	14.848	.055	15.152	y	60.139	819	58.807	123.171	1.099	H1-1b
488	6	M78	W24X62	.218	11.53	.072	22.83	y	103.845	819	58.807	573.75	1	H1-1b
489	6	M79	W24X62	.218	11.305	.072	22.84	y	103.754	819	58.807	573.75	1	H1-1b
490	6	M80	W24X62	.218	11.53	.072	22.83	y	103.845	819	58.807	573.75	1	H1-1b
491	6	M81	W24X62	.218	11.53	.072	22.83	y	103.845	819	58.807	573.75	1	H1-1b
492	6	M82	W24X62	.203	10.889	.069	0	y	111.828	819	58.807	573.75	1	H1-1b
493	7	M5	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
494	7	M6	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
495	7	M7	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
496	7	M8	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
497	7	M9	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
498	7	M10	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
499	7	M11	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
500	7	M12	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
501	7	M13	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
502	7	M14	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
503	7	M15	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
504	7	M16	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
505	7	M17	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
506	7	M18	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
507	7	M19	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
508	7	M20	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
509	7	M21	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
510	7	M22	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
511	7	M23	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
512	7	M24	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
513	7	M25	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
514	7	M26	HSS6X6X4	.040	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
515	7	M27	HSS6X6X4	.371	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
516	7	M28	HSS6X6X4	.372	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
517	7	M29	HSS6X6X4	.095	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
518	7	M30	HSS6X6X4	.220	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
519	7	M31	HSS6X6X4	.644	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
520	7	M32	HSS6X6X4	.644	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
521	7	M33	HSS6X6X4	.241	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
522	7	M34	HSS6X6X4	.286	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
523	7	M35	HSS6X6X4	.556	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
524	7	M36	HSS6X6X4	.556	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
525	7	M37	HSS6X6X4	.098	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
526	7	M38	HSS6X6X4	.292	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
527	7	M39	HSS6X6X4	.556	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
528	7	M40	HSS6X6X4	.556	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
529	7	M41	HSS6X6X4	.286	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
530	7	M42	HSS6X6X4	.286	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
531	7	M43	HSS6X6X4	.556	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
532	7	M44	HSS6X6X4	.556	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
533	7	M45	HSS6X6X4	.286	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
534	7	M46	HSS6X6X4	.281	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
535	7	M47	HSS6X6X4	.383	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
536	7	M48	HSS6X6X4	.382	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
537	7	M49	HSS6X6X4	.281	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
538	7	M50	HSS6X6X4	.071	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
539	7	M51	HSS6X6X4	.274	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
540	7	M52	HSS6X6X4	.276	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
541	7	M53	HSS6X6X4	.071	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
542	7	M54	HSS6X6X4	.038	10.537	.003	0	y	100.047	216.297	38.625	38.625	1.14	H1-1b
543	7	M55	HSS6X6X4	.566	10.747	.003	0	y	100.047	216.297	38.625	38.625	1.14	H1-1a
544	7	M56	HSS6X6X4	.041	12.359	.004	0	y	71.878	216.297	38.625	38.625	1.14	H1-1b
545	7	M57	HSS6X6X4	.040	9.322	.002	18.457	y	118.296	216.297	38.625	38.625	1.14	H1-1b
546	7	M58	HSS6X6X4	.397	8.76	.002	0	y	118.344	216.297	38.625	38.625	1.14	H1-1a
547	7	M59	HSS6X6X4	.038	12.682	.004	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
548	7	M60	HSS6X6X4	.733	12.775	.004	0	y	64.559	216.297	38.625	38.625	1.14	H1-1a
549	7	M61	HSS6X6X4	.726	12.775	.004	0	y	64.559	216.297	38.625	38.625	1.14	H1-1a
550	7	M62	HSS6X6X4	.036	12.682	.004	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
551	7	M59A	W24X62	.357	14.848	.089	0	y	60.139	819	58.807	573.75	1	H1-1b
552	7	M60A	W24X62	.138	11.53	.043	11.53	y	103.845	819	58.807	227.493	1.38	H1-1b
553	7	M61A	W24X62	.207	11.535	.068	22.84	y	103.754	819	58.807	573.75	1	H1-1b
554	7	M62A	W24X62	.206	11.53	.068	22.83	y	103.845	819	58.807	573.75	1	H1-1b
555	7	M63	W24X62	.206	11.53	.068	22.83	y	103.845	819	58.807	573.75	1	H1-1b
556	7	M64	W24X62	.192	10.889	.065	0	y	111.828	819	58.807	573.75	1	H1-1b
557	7	M65	W24X84	.479	14.848	.158	0	y	164.553	1111.5	122.25	840	1	H1-1b
558	7	M66	W24X62	.403	11.3	.132	22.83	y	103.845	819	58.807	573.75	1	H1-1b
559	7	M67	W24X62	.403	11.305	.132	22.84	y	103.754	819	58.807	573.75	1	H1-1b
560	7	M68	W24X62	.403	11.3	.132	22.83	y	103.845	819	58.807	573.75	1	H1-1b
561	7	M69	W24X62	.403	11.3	.132	22.83	y	103.845	819	58.807	573.75	1	H1-1b
562	7	M70	W24X62	.374	11.111	.127	0	y	111.828	819	58.807	573.75	1	H1-1b
563	7	M71	W24X84	.479	14.848	.158	0	y	164.553	1111.5	122.25	840	1	H1-1b
564	7	M72	W24X62	.403	11.3	.132	22.83	y	103.845	819	58.807	573.75	1	H1-1b
565	7	M73	W24X62	.403	11.305	.132	22.84	y	103.754	819	58.807	573.75	1	H1-1b
566	7	M74	W24X62	.403	11.3	.132	22.83	y	103.845	819	58.807	573.75	1	H1-1b
567	7	M75	W24X62	.403	11.3	.132	22.83	y	103.845	819	58.807	573.75	1	H1-1b
568	7	M76	W24X62	.374	11.111	.127	0	y	111.828	819	58.807	573.75	1	H1-1b
569	7	M77	W24X62	.310	15.152	.052	15.152	y	60.139	819	58.807	123.193	1.1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
570	7	M78	W24X62	.206	11.53	.068	22.83	y	103.845	819	58.807	573.75	1	H1-1b
571	7	M79	W24X62	.207	11.535	.068	22.84	y	103.754	819	58.807	573.75	1	H1-1b
572	7	M80	W24X62	.206	11.53	.068	22.83	y	103.845	819	58.807	573.75	1	H1-1b
573	7	M81	W24X62	.206	11.53	.068	22.83	y	103.845	819	58.807	573.75	1	H1-1b
574	7	M82	W24X62	.192	10.889	.065	0	y	111.828	819	58.807	573.75	1	H1-1b
575	8	M5	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
576	8	M6	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
577	8	M7	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
578	8	M8	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
579	8	M9	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
580	8	M10	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
581	8	M11	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
582	8	M12	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
583	8	M13	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
584	8	M14	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
585	8	M15	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
586	8	M16	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
587	8	M17	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
588	8	M18	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
589	8	M19	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
590	8	M20	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
591	8	M21	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
592	8	M22	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
593	8	M23	W24X62	.007	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
594	8	M24	W24X62	.007	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
595	8	M25	W24X62	.007	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
596	8	M26	HSS6X6X4	.040	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
597	8	M27	HSS6X6X4	.612	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
598	8	M28	HSS6X6X4	.372	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
599	8	M29	HSS6X6X4	.095	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
600	8	M30	HSS6X6X4	.220	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
601	8	M31	HSS6X6X4	.644	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
602	8	M32	HSS6X6X4	.644	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
603	8	M33	HSS6X6X4	.241	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
604	8	M34	HSS6X6X4	.286	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
605	8	M35	HSS6X6X4	.556	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
606	8	M36	HSS6X6X4	.556	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
607	8	M37	HSS6X6X4	.098	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
608	8	M38	HSS6X6X4	.539	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
609	8	M39	HSS6X6X4	.556	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
610	8	M40	HSS6X6X4	.556	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
611	8	M41	HSS6X6X4	.286	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
612	8	M42	HSS6X6X4	.286	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
613	8	M43	HSS6X6X4	.556	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
614	8	M44	HSS6X6X4	.556	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
615	8	M45	HSS6X6X4	.286	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
616	8	M46	HSS6X6X4	.281	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
617	8	M47	HSS6X6X4	.496	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
618	8	M48	HSS6X6X4	.496	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
619	8	M49	HSS6X6X4	.281	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
620	8	M50	HSS6X6X4	.071	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
621	8	M51	HSS6X6X4	.274	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
622	8	M52	HSS6X6X4	.529	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
623	8	M53	HSS6X6X4	.071	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
624	8	M54	HSS6X6X4	.348	10.115	.003	20.863	y	100.047	216.297	38.625	38.625	1.14	H1-1a
625	8	M55	HSS6X6X4	.096	10.537	.003	0	y	100.047	216.297	38.625	38.625	1.14	H1-1b
626	8	M56	HSS6X6X4	.314	12.612	.004	24.971	y	71.878	216.297	38.625	38.625	1.14	H1-1a

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
627	8	M57	HSS6X6X4	.231	8.762	.002	18.457	y	118.296	216.297	38.625	38.625	1.14	H1-1a
628	8	M58	HSS6X6X4	.050	8.946	.002	0	y	118.344	216.297	38.625	38.625	1.14	H1-1b
629	8	M59	HSS6X6X4	.331	12.682	.004	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1a
630	8	M60	HSS6X6X4	.253	12.775	.004	26.349	y	64.559	216.297	38.625	38.625	1.14	H1-1a
631	8	M61	HSS6X6X4	.254	12.775	.004	26.349	y	64.559	216.297	38.625	38.625	1.14	H1-1a
632	8	M62	HSS6X6X4	.334	12.682	.004	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1a
633	8	M59A	W24X62	.357	14.848	.089	0	y	60.139	819	58.807	573.75	1	H1-1b
634	8	M60A	W24X62	.139	11.53	.043	11.53	y	103.845	819	58.807	227.459	1.38	H1-1b
635	8	M61A	W24X62	.207	11.535	.068	22.84	y	103.754	819	58.807	573.75	1	H1-1b
636	8	M62A	W24X62	.206	11.53	.068	22.83	y	103.845	819	58.807	573.75	1	H1-1b
637	8	M63	W24X62	.206	11.53	.068	22.83	y	103.845	819	58.807	573.75	1	H1-1b
638	8	M64	W24X62	.192	10.889	.065	0	y	111.828	819	58.807	573.75	1	H1-1b
639	8	M65	W24X84	.479	14.848	.158	0	y	164.553	1111.5	122.25	840	1	H1-1b
640	8	M66	W24X62	.403	11.3	.132	22.83	y	103.845	819	58.807	573.75	1	H1-1b
641	8	M67	W24X62	.403	11.305	.132	22.84	y	103.754	819	58.807	573.75	1	H1-1b
642	8	M68	W24X62	.403	11.3	.132	22.83	y	103.845	819	58.807	573.75	1	H1-1b
643	8	M69	W24X62	.403	11.3	.132	22.83	y	103.845	819	58.807	573.75	1	H1-1b
644	8	M70	W24X62	.374	11.111	.127	0	y	111.828	819	58.807	573.75	1	H1-1b
645	8	M71	W24X84	.479	14.848	.158	0	y	164.553	1111.5	122.25	840	1	H1-1b
646	8	M72	W24X62	.403	11.3	.132	22.83	y	103.845	819	58.807	573.75	1	H1-1b
647	8	M73	W24X62	.403	11.305	.132	22.84	y	103.754	819	58.807	573.75	1	H1-1b
648	8	M74	W24X62	.403	11.3	.132	22.83	y	103.845	819	58.807	573.75	1	H1-1b
649	8	M75	W24X62	.403	11.3	.132	22.83	y	103.845	819	58.807	573.75	1	H1-1b
650	8	M76	W24X62	.374	11.111	.127	0	y	111.828	819	58.807	573.75	1	H1-1b
651	8	M77	W24X62	.310	15.152	.052	15.152	y	60.139	819	58.807	123.182	1.1	H1-1b
652	8	M78	W24X62	.206	11.53	.068	22.83	y	103.845	819	58.807	573.75	1	H1-1b
653	8	M79	W24X62	.207	11.535	.068	22.84	y	103.754	819	58.807	573.75	1	H1-1b
654	8	M80	W24X62	.206	11.53	.068	22.83	y	103.845	819	58.807	573.75	1	H1-1b
655	8	M81	W24X62	.206	11.53	.068	22.83	y	103.845	819	58.807	573.75	1	H1-1b
656	8	M82	W24X62	.192	10.889	.065	0	y	111.828	819	58.807	573.75	1	H1-1b
657	9	M5	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
658	9	M6	W24X62	.005	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
659	9	M7	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
660	9	M8	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
661	9	M9	W24X62	.005	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
662	9	M10	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
663	9	M11	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
664	9	M12	W24X62	.005	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
665	9	M13	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
666	9	M14	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
667	9	M15	W24X62	.005	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
668	9	M16	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
669	9	M17	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
670	9	M18	W24X62	.005	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
671	9	M19	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
672	9	M20	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
673	9	M21	W24X62	.005	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
674	9	M22	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
675	9	M23	W24X62	.191	10.146	.010	20.5	z	128.792	819	58.807	573.75	1	H1-1b
676	9	M24	W24X62	.188	10.268	.009	20.33	z	130.955	819	58.807	573.75	1	H1-1b
677	9	M25	W24X62	.191	10.146	.010	20.5	z	128.792	819	58.807	573.75	1	H1-1b
678	9	M26	HSS6X6X4	.030	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
679	9	M27	HSS6X6X4	.278	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
680	9	M28	HSS6X6X4	.279	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
681	9	M29	HSS6X6X4	.071	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
682	9	M30	HSS6X6X4	.082	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
683	9	M31	HSS6X6X4	.483	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
684	9	M32	HSS6X6X4	.483	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
685	9	M33	HSS6X6X4	.090	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
686	9	M34	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
687	9	M35	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
688	9	M36	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
689	9	M37	HSS6X6X4	.074	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
690	9	M38	HSS6X6X4	.219	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
691	9	M39	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
692	9	M40	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
693	9	M41	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
694	9	M42	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
695	9	M43	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
696	9	M44	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
697	9	M45	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
698	9	M46	HSS6X6X4	.211	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
699	9	M47	HSS6X6X4	.363	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
700	9	M48	HSS6X6X4	.362	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
701	9	M49	HSS6X6X4	.211	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
702	9	M50	HSS6X6X4	.053	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
703	9	M51	HSS6X6X4	.206	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
704	9	M52	HSS6X6X4	.207	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
705	9	M53	HSS6X6X4	.053	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
706	9	M54	HSS6X6X4	.221	10.115	.002	20.863	y	100.047	216.297	38.625	38.625	1.14	H1-1a
707	9	M55	HSS6X6X4	.091	10.537	.002	0	y	100.047	216.297	38.625	38.625	1.14	H1-1b
708	9	M56	HSS6X6X4	.030	12.359	.003	24.971	y	71.878	216.297	38.625	38.625	1.14	H1-1b
709	9	M57	HSS6X6X4	.083	8.949	.001	18.457	y	118.296	216.297	38.625	38.625	1.14	H1-1b
710	9	M58	HSS6X6X4	.048	8.946	.001	0	y	118.344	216.297	38.625	38.625	1.14	H1-1b
711	9	M59	HSS6X6X4	.029	12.682	.003	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
712	9	M60	HSS6X6X4	.232	12.775	.003	0	y	64.559	216.297	38.625	38.625	1.14	H1-1a
713	9	M61	HSS6X6X4	.226	11.178	.003	26.349	y	64.559	216.297	38.625	38.625	1.14	H1-1a
714	9	M62	HSS6X6X4	.027	12.428	.003	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
715	9	M59A	W24X62	.267	14.848	.067	0	y	60.139	819	58.807	573.75	1	H1-1b
716	9	M60A	W24X62	.103	11.53	.032	11.53	y	103.845	819	58.807	227.46	1.38	H1-1b
717	9	M61A	W24X62	.155	11.535	.051	22.84	y	103.754	819	58.807	573.75	1	H1-1b
718	9	M62A	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
719	9	M63	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
720	9	M64	W24X62	.144	10.889	.049	0	y	111.828	819	58.807	573.75	1	H1-1b
721	9	M65	W24X84	.359	15.152	.118	0	y	164.553	1111.5	122.25	840	1	H1-1b
722	9	M66	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
723	9	M67	W24X62	.302	11.305	.099	22.84	y	103.754	819	58.807	573.75	1	H1-1b
724	9	M68	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
725	9	M69	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
726	9	M70	W24X62	.281	10.889	.096	0	y	111.828	819	58.807	573.75	1	H1-1b
727	9	M71	W24X84	.359	15.152	.118	0	y	164.553	1111.5	122.25	840	1	H1-1b
728	9	M72	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
729	9	M73	W24X62	.302	11.305	.099	22.84	y	103.754	819	58.807	573.75	1	H1-1b
730	9	M74	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
731	9	M75	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
732	9	M76	W24X62	.281	10.889	.096	0	y	111.828	819	58.807	573.75	1	H1-1b
733	9	M77	W24X62	.233	14.848	.039	15.152	y	60.139	819	58.807	123.183	1.1	H1-1b
734	9	M78	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
735	9	M79	W24X62	.155	11.535	.051	22.84	y	103.754	819	58.807	573.75	1	H1-1b
736	9	M80	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
737	9	M81	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
738	9	M82	W24X62	.144	10.889	.049	0	y	111.828	819	58.807	573.75	1	H1-1b
739	10	M5	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
740	10	M6	W24X62	.005	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
741	10	M7	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
742	10	M8	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
743	10	M9	W24X62	.005	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
744	10	M10	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
745	10	M11	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
746	10	M12	W24X62	.005	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
747	10	M13	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
748	10	M14	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
749	10	M15	W24X62	.005	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
750	10	M16	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
751	10	M17	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
752	10	M18	W24X62	.005	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
753	10	M19	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
754	10	M20	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
755	10	M21	W24X62	.005	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
756	10	M22	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
757	10	M23	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
758	10	M24	W24X62	.005	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
759	10	M25	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
760	10	M26	HSS6X6X4	.030	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
761	10	M27	HSS6X6X4	.324	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
762	10	M28	HSS6X6X4	.279	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
763	10	M29	HSS6X6X4	.071	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
764	10	M30	HSS6X6X4	.082	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
765	10	M31	HSS6X6X4	.483	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
766	10	M32	HSS6X6X4	.483	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
767	10	M33	HSS6X6X4	.090	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
768	10	M34	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
769	10	M35	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
770	10	M36	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
771	10	M37	HSS6X6X4	.074	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
772	10	M38	HSS6X6X4	.263	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
773	10	M39	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
774	10	M40	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
775	10	M41	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
776	10	M42	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
777	10	M43	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
778	10	M44	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
779	10	M45	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
780	10	M46	HSS6X6X4	.211	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
781	10	M47	HSS6X6X4	.373	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
782	10	M48	HSS6X6X4	.371	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
783	10	M49	HSS6X6X4	.211	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
784	10	M50	HSS6X6X4	.053	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
785	10	M51	HSS6X6X4	.206	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
786	10	M52	HSS6X6X4	.249	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
787	10	M53	HSS6X6X4	.053	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
788	10	M54	HSS6X6X4	.252	10.115	.002	0	y	100.047	216.297	38.625	38.625	1.14	H1-1a
789	10	M55	HSS6X6X4	.076	10.537	.002	0	y	100.047	216.297	38.625	38.625	1.14	H1-1b
790	10	M56	HSS6X6X4	.052	12.612	.003	24.971	y	71.878	216.297	38.625	38.625	1.14	H1-1b
791	10	M57	HSS6X6X4	.097	8.949	.001	18.457	y	118.296	216.297	38.625	38.625	1.14	H1-1b
792	10	M58	HSS6X6X4	.034	8.946	.001	18.451	y	118.344	216.297	38.625	38.625	1.14	H1-1b
793	10	M59	HSS6X6X4	.055	12.682	.003	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
794	10	M60	HSS6X6X4	.113	13.041	.003	0	y	64.559	216.297	38.625	38.625	1.14	H1-1b
795	10	M61	HSS6X6X4	.110	13.041	.003	0	y	64.559	216.297	38.625	38.625	1.14	H1-1b
796	10	M62	HSS6X6X4	.052	12.682	.003	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
797	10	M59A	W24X62	.635	14.848	.067	0	y	60.139	819	58.807	573.75	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
798	10	M60A	W24X62	.154	11.53	.032	11.53	y	103.845	819	58.807	227.46	1.38	H1-1b
799	10	M61A	W24X62	.368	11.535	.051	22.84	y	103.754	819	58.807	573.75	1	H1-1b
800	10	M62A	W24X62	.368	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
801	10	M63	W24X62	.368	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
802	10	M64	W24X62	.341	10.889	.049	0	y	111.828	819	58.807	573.75	1	H1-1b
803	10	M65	W24X84	.359	15.152	.118	0	y	164.553	1111.5	122.25	840	1	H1-1b
804	10	M66	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
805	10	M67	W24X62	.302	11.305	.099	22.84	y	103.754	819	58.807	573.75	1	H1-1b
806	10	M68	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
807	10	M69	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
808	10	M70	W24X62	.281	10.889	.096	0	y	111.828	819	58.807	573.75	1	H1-1b
809	10	M71	W24X84	.359	15.152	.118	0	y	164.553	1111.5	122.25	840	1	H1-1b
810	10	M72	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
811	10	M73	W24X62	.302	11.305	.099	22.84	y	103.754	819	58.807	573.75	1	H1-1b
812	10	M74	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
813	10	M75	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
814	10	M76	W24X62	.281	10.889	.096	0	y	111.828	819	58.807	573.75	1	H1-1b
815	10	M77	W24X62	.233	14.848	.039	15.152	y	60.139	819	58.807	123.183	1.1	H1-1b
816	10	M78	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
817	10	M79	W24X62	.155	11.535	.051	22.84	y	103.754	819	58.807	573.75	1	H1-1b
818	10	M80	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
819	10	M81	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
820	10	M82	W24X62	.144	10.889	.049	0	y	111.828	819	58.807	573.75	1	H1-1b
821	11	M5	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
822	11	M6	W24X62	.005	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
823	11	M7	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
824	11	M8	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
825	11	M9	W24X62	.005	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
826	11	M10	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
827	11	M11	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
828	11	M12	W24X62	.005	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
829	11	M13	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
830	11	M14	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
831	11	M15	W24X62	.005	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
832	11	M16	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
833	11	M17	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
834	11	M18	W24X62	.005	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
835	11	M19	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
836	11	M20	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
837	11	M21	W24X62	.005	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
838	11	M22	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
839	11	M23	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
840	11	M24	W24X62	.005	10.062	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
841	11	M25	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
842	11	M26	HSS6X6X4	.030	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
843	11	M27	HSS6X6X4	.278	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
844	11	M28	HSS6X6X4	.279	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
845	11	M29	HSS6X6X4	.071	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
846	11	M30	HSS6X6X4	.082	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
847	11	M31	HSS6X6X4	.483	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
848	11	M32	HSS6X6X4	.483	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
849	11	M33	HSS6X6X4	.090	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
850	11	M34	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
851	11	M35	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
852	11	M36	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
853	11	M37	HSS6X6X4	.074	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
854	11	M38	HSS6X6X4	.219	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
855	11	M39	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
856	11	M40	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
857	11	M41	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
858	11	M42	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
859	11	M43	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
860	11	M44	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
861	11	M45	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
862	11	M46	HSS6X6X4	.211	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
863	11	M47	HSS6X6X4	.259	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
864	11	M48	HSS6X6X4	.258	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
865	11	M49	HSS6X6X4	.211	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
866	11	M50	HSS6X6X4	.053	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
867	11	M51	HSS6X6X4	.206	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
868	11	M52	HSS6X6X4	.208	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
869	11	M53	HSS6X6X4	.053	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
870	11	M54	HSS6X6X4	.051	10.537	.002	0	y	100.047	216.297	38.625	38.625	1.14	H1-1b
871	11	M55	HSS6X6X4	.521	10.747	.002	0	y	100.047	216.297	38.625	38.625	1.14	H1-1a
872	11	M56	HSS6X6X4	.031	12.359	.003	24.971	y	71.878	216.297	38.625	38.625	1.14	H1-1b
873	11	M57	HSS6X6X4	.052	9.322	.001	18.457	y	118.296	216.297	38.625	38.625	1.14	H1-1b
874	11	M58	HSS6X6X4	.377	8.76	.001	0	y	118.344	216.297	38.625	38.625	1.14	H1-1a
875	11	M59	HSS6X6X4	.029	12.682	.003	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
876	11	M60	HSS6X6X4	.668	12.775	.003	26.349	y	64.559	216.297	38.625	38.625	1.14	H1-1a
877	11	M61	HSS6X6X4	.663	12.775	.003	26.349	y	64.559	216.297	38.625	38.625	1.14	H1-1a
878	11	M62	HSS6X6X4	.027	12.682	.003	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
879	11	M59A	W24X62	.267	14.848	.067	0	y	60.139	819	58.807	573.75	1	H1-1b
880	11	M60A	W24X62	.103	11.3	.032	11.53	y	103.845	819	58.807	227.512	1.38	H1-1b
881	11	M61A	W24X62	.155	11.535	.051	22.84	y	103.754	819	58.807	573.75	1	H1-1b
882	11	M62A	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
883	11	M63	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
884	11	M64	W24X62	.144	10.889	.049	0	y	111.828	819	58.807	573.75	1	H1-1b
885	11	M65	W24X84	.359	15.152	.118	0	y	164.553	1111.5	122.25	840	1	H1-1b
886	11	M66	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
887	11	M67	W24X62	.302	11.305	.099	22.84	y	103.754	819	58.807	573.75	1	H1-1b
888	11	M68	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
889	11	M69	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
890	11	M70	W24X62	.281	10.889	.096	0	y	111.828	819	58.807	573.75	1	H1-1b
891	11	M71	W24X84	.359	15.152	.118	0	y	164.553	1111.5	122.25	840	1	H1-1b
892	11	M72	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
893	11	M73	W24X62	.302	11.305	.099	22.84	y	103.754	819	58.807	573.75	1	H1-1b
894	11	M74	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
895	11	M75	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
896	11	M76	W24X62	.281	10.889	.096	0	y	111.828	819	58.807	573.75	1	H1-1b
897	11	M77	W24X62	.233	15.152	.039	15.152	y	60.139	819	58.807	123.202	1.1	H1-1b
898	11	M78	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
899	11	M79	W24X62	.155	11.535	.051	22.84	y	103.754	819	58.807	573.75	1	H1-1b
900	11	M80	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
901	11	M81	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
902	11	M82	W24X62	.144	10.889	.049	0	y	111.828	819	58.807	573.75	1	H1-1b
903	12	M5	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
904	12	M6	W24X62	.005	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
905	12	M7	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
906	12	M8	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
907	12	M9	W24X62	.005	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
908	12	M10	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
909	12	M11	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
910	12	M12	W24X62	.005	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
911	12	M13	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
912	12	M14	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
913	12	M15	W24X62	.005	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
914	12	M16	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
915	12	M17	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
916	12	M18	W24X62	.005	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
917	12	M19	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
918	12	M20	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
919	12	M21	W24X62	.005	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
920	12	M22	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
921	12	M23	W24X62	.005	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
922	12	M24	W24X62	.005	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
923	12	M25	W24X62	.005	10.146	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
924	12	M26	HSS6X6X4	.030	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
925	12	M27	HSS6X6X4	.518	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
926	12	M28	HSS6X6X4	.279	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
927	12	M29	HSS6X6X4	.071	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
928	12	M30	HSS6X6X4	.082	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
929	12	M31	HSS6X6X4	.483	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
930	12	M32	HSS6X6X4	.483	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
931	12	M33	HSS6X6X4	.090	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
932	12	M34	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
933	12	M35	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
934	12	M36	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
935	12	M37	HSS6X6X4	.074	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
936	12	M38	HSS6X6X4	.465	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
937	12	M39	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
938	12	M40	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
939	12	M41	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
940	12	M42	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
941	12	M43	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
942	12	M44	HSS6X6X4	.417	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
943	12	M45	HSS6X6X4	.214	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
944	12	M46	HSS6X6X4	.211	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
945	12	M47	HSS6X6X4	.372	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
946	12	M48	HSS6X6X4	.372	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
947	12	M49	HSS6X6X4	.211	0	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
948	12	M50	HSS6X6X4	.053	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
949	12	M51	HSS6X6X4	.206	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
950	12	M52	HSS6X6X4	.459	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
951	12	M53	HSS6X6X4	.053	0	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
952	12	M54	HSS6X6X4	.263	10.115	.002	20.863	y	100.047	216.297	38.625	38.625	1.14	H1-1a
953	12	M55	HSS6X6X4	.071	10.537	.002	0	y	100.047	216.297	38.625	38.625	1.14	H1-1b
954	12	M56	HSS6X6X4	.305	12.612	.003	24.971	y	71.878	216.297	38.625	38.625	1.14	H1-1a
955	12	M57	HSS6X6X4	.091	8.949	.001	18.457	y	118.296	216.297	38.625	38.625	1.14	H1-1b
956	12	M58	HSS6X6X4	.039	8.946	.001	18.451	y	118.344	216.297	38.625	38.625	1.14	H1-1b
957	12	M59	HSS6X6X4	.321	12.682	.003	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1a
958	12	M60	HSS6X6X4	.111	13.041	.003	0	y	64.559	216.297	38.625	38.625	1.14	H1-1b
959	12	M61	HSS6X6X4	.112	13.041	.003	26.349	y	64.559	216.297	38.625	38.625	1.14	H1-1b
960	12	M62	HSS6X6X4	.325	12.682	.003	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1a
961	12	M59A	W24X62	.267	14.848	.067	0	y	60.139	819	58.807	573.75	1	H1-1b
962	12	M60A	W24X62	.105	11.53	.032	11.53	y	103.845	819	58.807	227.46	1.38	H1-1b
963	12	M61A	W24X62	.155	11.535	.051	22.84	y	103.754	819	58.807	573.75	1	H1-1b
964	12	M62A	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
965	12	M63	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
966	12	M64	W24X62	.144	10.889	.049	0	y	111.828	819	58.807	573.75	1	H1-1b
967	12	M65	W24X84	.359	15.152	.118	0	y	164.553	1111.5	122.25	840	1	H1-1b
968	12	M66	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
969	12	M67	W24X62	.302	11.305	.099	22.84	y	103.754	819	58.807	573.75	1	H1-1b
970	12	M68	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
971	12	M69	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
972	12	M70	W24X62	.281	10.889	.096	0	y	111.828	819	58.807	573.75	1	H1-1b
973	12	M71	W24X84	.359	15.152	.118	0	y	164.553	1111.5	122.25	840	1	H1-1b
974	12	M72	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
975	12	M73	W24X62	.302	11.305	.099	22.84	y	103.754	819	58.807	573.75	1	H1-1b
976	12	M74	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
977	12	M75	W24X62	.302	11.53	.099	22.83	y	103.845	819	58.807	573.75	1	H1-1b
978	12	M76	W24X62	.281	10.889	.096	0	y	111.828	819	58.807	573.75	1	H1-1b
979	12	M77	W24X62	.233	15.152	.039	15.152	y	60.139	819	58.807	123.184	1.1	H1-1b
980	12	M78	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
981	12	M79	W24X62	.155	11.535	.051	22.84	y	103.754	819	58.807	573.75	1	H1-1b
982	12	M80	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
983	12	M81	W24X62	.155	11.3	.051	22.83	y	103.845	819	58.807	573.75	1	H1-1b
984	12	M82	W24X62	.144	10.889	.049	0	y	111.828	819	58.807	573.75	1	H1-1b
985	13	M5	W24X62	- P-Delta...										
986	13	M6	W24X62	- P-Delta...										
987	13	M7	W24X62	- P-Delta...										
988	13	M8	W24X62	- P-Delta...										
989	13	M9	W24X62	- P-Delta...										
990	13	M10	W24X62	- P-Delta...										
991	13	M11	W24X62	- P-Delta...										
992	13	M12	W24X62	- P-Delta...										
993	13	M13	W24X62	- P-Delta...										
994	13	M14	W24X62	- P-Delta...										
995	13	M15	W24X62	- P-Delta...										
996	13	M16	W24X62	- P-Delta...										
997	13	M17	W24X62	- P-Delta...										
998	13	M18	W24X62	- P-Delta...										
999	13	M19	W24X62	- P-Delta...										
1000	13	M20	W24X62	- P-Delta...										
1001	13	M21	W24X62	- P-Delta...										
1002	13	M22	W24X62	- P-Delta...										
1003	13	M23	W24X62	- P-Delta...										
1004	13	M24	W24X62	- P-Delta...										
1005	13	M25	W24X62	- P-Delta...										
1006	13	M26	HSS6X6X4	- P-Delta...										
1007	13	M27	HSS6X6X4	- P-Delta...										
1008	13	M28	HSS6X6X4	- P-Delta...										
1009	13	M29	HSS6X6X4	- P-Delta...										
1010	13	M30	HSS6X6X4	- P-Delta...										
1011	13	M31	HSS6X6X4	- P-Delta...										
1012	13	M32	HSS6X6X4	- P-Delta...										
1013	13	M33	HSS6X6X4	- P-Delta...										
1014	13	M34	HSS6X6X4	- P-Delta...										
1015	13	M35	HSS6X6X4	- P-Delta...										
1016	13	M36	HSS6X6X4	- P-Delta...										
1017	13	M37	HSS6X6X4	- P-Delta...										
1018	13	M38	HSS6X6X4	- P-Delta...										
1019	13	M39	HSS6X6X4	- P-Delta...										
1020	13	M40	HSS6X6X4	- P-Delta...										
1021	13	M41	HSS6X6X4	- P-Delta...										
1022	13	M42	HSS6X6X4	- P-Delta...										
1023	13	M43	HSS6X6X4	- P-Delta...										
1024	13	M44	HSS6X6X4	- P-Delta...										
1025	13	M45	HSS6X6X4	- P-Delta...										

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
1995	25	M31	HSS6X6X4	- P-Delta...										
1996	25	M32	HSS6X6X4	- P-Delta...										
1997	25	M33	HSS6X6X4	- P-Delta...										
1998	25	M34	HSS6X6X4	- P-Delta...										
1999	25	M35	HSS6X6X4	- P-Delta...										
2000	25	M36	HSS6X6X4	- P-Delta...										
2001	25	M37	HSS6X6X4	- P-Delta...										
2002	25	M38	HSS6X6X4	- P-Delta...										
2003	25	M39	HSS6X6X4	- P-Delta...										
2004	25	M40	HSS6X6X4	- P-Delta...										
2005	25	M41	HSS6X6X4	- P-Delta...										
2006	25	M42	HSS6X6X4	- P-Delta...										
2007	25	M43	HSS6X6X4	- P-Delta...										
2008	25	M44	HSS6X6X4	- P-Delta...										
2009	25	M45	HSS6X6X4	- P-Delta...										
2010	25	M46	HSS6X6X4	- P-Delta...										
2011	25	M47	HSS6X6X4	- P-Delta...										
2012	25	M48	HSS6X6X4	- P-Delta...										
2013	25	M49	HSS6X6X4	- P-Delta...										
2014	25	M50	HSS6X6X4	- P-Delta...										
2015	25	M51	HSS6X6X4	- P-Delta...										
2016	25	M52	HSS6X6X4	- P-Delta...										
2017	25	M53	HSS6X6X4	- P-Delta...										
2018	25	M54	HSS6X6X4	- P-Delta...										
2019	25	M55	HSS6X6X4	- P-Delta...										
2020	25	M56	HSS6X6X4	- P-Delta...										
2021	25	M57	HSS6X6X4	- P-Delta...										
2022	25	M58	HSS6X6X4	- P-Delta...										
2023	25	M59	HSS6X6X4	- P-Delta...										
2024	25	M60	HSS6X6X4	- P-Delta...										
2025	25	M61	HSS6X6X4	- P-Delta...										
2026	25	M62	HSS6X6X4	- P-Delta...										
2027	25	M59A	W24X62	- P-Delta...										
2028	25	M60A	W24X62	- P-Delta...										
2029	25	M61A	W24X62	- P-Delta...										
2030	25	M62A	W24X62	- P-Delta...										
2031	25	M63	W24X62	- P-Delta...										
2032	25	M64	W24X62	- P-Delta...										
2033	25	M65	W24X84	- P-Delta...										
2034	25	M66	W24X62	- P-Delta...										
2035	25	M67	W24X62	- P-Delta...										
2036	25	M68	W24X62	- P-Delta...										
2037	25	M69	W24X62	- P-Delta...										
2038	25	M70	W24X62	- P-Delta...										
2039	25	M71	W24X84	- P-Delta...										
2040	25	M72	W24X62	- P-Delta...										
2041	25	M73	W24X62	- P-Delta...										
2042	25	M74	W24X62	- P-Delta...										
2043	25	M75	W24X62	- P-Delta...										
2044	25	M76	W24X62	- P-Delta...										
2045	25	M77	W24X62	- P-Delta...										
2046	25	M78	W24X62	- P-Delta...										
2047	25	M79	W24X62	- P-Delta...										
2048	25	M80	W24X62	- P-Delta...										
2049	25	M81	W24X62	- P-Delta...										
2050	25	M82	W24X62	- P-Delta...										
2051	26	M5	W24X62	.006	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
2052	26	M6	W24X62	.006	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
2053	26	M7	W24X62	.006	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
2054	26	M8	W24X62	.006	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
2055	26	M9	W24X62	.006	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
2056	26	M10	W24X62	.006	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
2057	26	M11	W24X62	.006	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
2058	26	M12	W24X62	.006	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
2059	26	M13	W24X62	.006	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
2060	26	M14	W24X62	.006	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
2061	26	M15	W24X62	.006	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
2062	26	M16	W24X62	.006	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
2063	26	M17	W24X62	.006	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
2064	26	M18	W24X62	.006	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
2065	26	M19	W24X62	.006	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
2066	26	M20	W24X62	.006	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
2067	26	M21	W24X62	.006	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
2068	26	M22	W24X62	.006	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
2069	26	M23	W24X62	.006	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
2070	26	M24	W24X62	.006	10.268	.002	20.33	y	130.955	819	58.807	573.75	1	H1-1b
2071	26	M25	W24X62	.006	10.354	.002	20.5	y	128.792	819	58.807	573.75	1	H1-1b
2072	26	M26	HSS6X6X4	.004	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2073	26	M27	HSS6X6X4	.010	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2074	26	M28	HSS6X6X4	.009	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2075	26	M29	HSS6X6X4	.006	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2076	26	M30	HSS6X6X4	.007	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2077	26	M31	HSS6X6X4	.012	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2078	26	M32	HSS6X6X4	.012	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2079	26	M33	HSS6X6X4	.007	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2080	26	M34	HSS6X6X4	.008	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2081	26	M35	HSS6X6X4	.010	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2082	26	M36	HSS6X6X4	.010	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2083	26	M37	HSS6X6X4	.006	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2084	26	M38	HSS6X6X4	.009	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2085	26	M39	HSS6X6X4	.010	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2086	26	M40	HSS6X6X4	.010	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2087	26	M41	HSS6X6X4	.008	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2088	26	M42	HSS6X6X4	.008	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2089	26	M43	HSS6X6X4	.010	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2090	26	M44	HSS6X6X4	.010	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2091	26	M45	HSS6X6X4	.008	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2092	26	M46	HSS6X6X4	.008	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2093	26	M47	HSS6X6X4	.010	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2094	26	M48	HSS6X6X4	.010	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2095	26	M49	HSS6X6X4	.008	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2096	26	M50	HSS6X6X4	.005	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2097	26	M51	HSS6X6X4	.007	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2098	26	M52	HSS6X6X4	.008	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2099	26	M53	HSS6X6X4	.005	0	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2100	26	M54	HSS6X6X4	.025	10.326	.002	0	y	100.047	216.297	38.625	38.625	1.14	H1-1b
2101	26	M55	HSS6X6X4	.022	10.537	.002	0	y	100.047	216.297	38.625	38.625	1.14	H1-1b
2102	26	M56	HSS6X6X4	.029	12.359	.003	0	y	71.878	216.297	38.625	38.625	1.14	H1-1b
2103	26	M57	HSS6X6X4	.017	8.949	.002	18.457	y	118.296	216.297	38.625	38.625	1.14	H1-1b
2104	26	M58	HSS6X6X4	.014	8.946	.002	18.451	y	118.344	216.297	38.625	38.625	1.14	H1-1b
2105	26	M59	HSS6X6X4	.030	12.682	.003	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b
2106	26	M60	HSS6X6X4	.037	13.041	.003	0	y	64.559	216.297	38.625	38.625	1.14	H1-1b
2107	26	M61	HSS6X6X4	.037	13.041	.003	0	y	64.559	216.297	38.625	38.625	1.14	H1-1b
2108	26	M62	HSS6X6X4	.030	12.428	.003	25.11	y	71.087	216.297	38.625	38.625	1.14	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
2109	26	M59A	W24X62	.012	14.848	.003	0	y	60.139	819	58.807	573.75	1	H1-1b
2110	26	M60A	W24X62	.005	11.53	.002	11.53	y	103.845	819	58.807	254.699	1.545	H1-1b
2111	26	M61A	W24X62	.007	11.305	.002	22.84	y	103.754	819	58.807	573.75	1	H1-1b
2112	26	M62A	W24X62	.007	11.3	.002	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2113	26	M63	W24X62	.007	11.3	.002	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2114	26	M64	W24X62	.007	10.889	.002	0	y	111.828	819	58.807	573.75	1	H1-1b
2115	26	M65	W24X84	.011	14.848	.004	0	y	164.553	1111.5	122.25	840	1	H1-1b
2116	26	M66	W24X62	.007	11.3	.002	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2117	26	M67	W24X62	.007	11.305	.002	22.84	y	103.754	819	58.807	573.75	1	H1-1b
2118	26	M68	W24X62	.007	11.3	.002	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2119	26	M69	W24X62	.007	11.3	.002	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2120	26	M70	W24X62	.007	10.889	.002	0	y	111.828	819	58.807	573.75	1	H1-1b
2121	26	M71	W24X84	.011	14.848	.004	0	y	164.553	1111.5	122.25	840	1	H1-1b
2122	26	M72	W24X62	.007	11.3	.002	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2123	26	M73	W24X62	.007	11.305	.002	22.84	y	103.754	819	58.807	573.75	1	H1-1b
2124	26	M74	W24X62	.007	11.3	.002	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2125	26	M75	W24X62	.007	11.3	.002	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2126	26	M76	W24X62	.007	10.889	.002	0	y	111.828	819	58.807	573.75	1	H1-1b
2127	26	M77	W24X62	.011	14.848	.002	15.152	y	60.139	819	58.807	127.722	1.14	H1-1b
2128	26	M78	W24X62	.007	11.3	.002	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2129	26	M79	W24X62	.007	11.305	.002	22.84	y	103.754	819	58.807	573.75	1	H1-1b
2130	26	M80	W24X62	.007	11.3	.002	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2131	26	M81	W24X62	.007	11.3	.002	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2132	26	M82	W24X62	.007	10.889	.002	0	y	111.828	819	58.807	573.75	1	H1-1b
2133	27	M5	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2134	27	M6	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2135	27	M7	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2136	27	M8	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2137	27	M9	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2138	27	M10	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2139	27	M11	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2140	27	M12	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2141	27	M13	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2142	27	M14	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2143	27	M15	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2144	27	M16	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2145	27	M17	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2146	27	M18	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2147	27	M19	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2148	27	M20	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2149	27	M21	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2150	27	M22	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2151	27	M23	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2152	27	M24	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2153	27	M25	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2154	27	M26	HSS6X6X4	.004	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2155	27	M27	HSS6X6X4	.020	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2156	27	M28	HSS6X6X4	.021	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2157	27	M29	HSS6X6X4	.010	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2158	27	M30	HSS6X6X4	.012	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2159	27	M31	HSS6X6X4	.036	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2160	27	M32	HSS6X6X4	.036	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2161	27	M33	HSS6X6X4	.013	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2162	27	M34	HSS6X6X4	.016	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2163	27	M35	HSS6X6X4	.031	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2164	27	M36	HSS6X6X4	.031	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2165	27	M37	HSS6X6X4	.011	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
2166	27	M38	HSS6X6X4	.016	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2167	27	M39	HSS6X6X4	.031	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2168	27	M40	HSS6X6X4	.031	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2169	27	M41	HSS6X6X4	.016	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2170	27	M42	HSS6X6X4	.016	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2171	27	M43	HSS6X6X4	.031	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2172	27	M44	HSS6X6X4	.031	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2173	27	M45	HSS6X6X4	.016	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2174	27	M46	HSS6X6X4	.015	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2175	27	M47	HSS6X6X4	.028	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2176	27	M48	HSS6X6X4	.028	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2177	27	M49	HSS6X6X4	.015	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2178	27	M50	HSS6X6X4	.008	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2179	27	M51	HSS6X6X4	.015	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2180	27	M52	HSS6X6X4	.015	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2181	27	M53	HSS6X6X4	.008	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2182	27	M54	HSS6X6X4	.018	0	.000	0	y	100.047	216.297	38.625	38.625	1	H1-1b
2183	27	M55	HSS6X6X4	.009	0	.000	0	y	100.047	216.297	38.625	38.625	1	H1-1b
2184	27	M56	HSS6X6X4	.001	0	.000	0	y	71.878	216.297	38.625	38.625	1	H1-1b
2185	27	M57	HSS6X6X4	.013	0	.000	0	y	118.296	216.297	38.625	38.625	1	H1-1b
2186	27	M58	HSS6X6X4	.003	0	.000	0	y	118.344	216.297	38.625	38.625	1	H1-1b
2187	27	M59	HSS6X6X4	.000	0	.000	0	y	71.087	216.297	38.625	38.625	1	H1-1b
2188	27	M60	HSS6X6X4	.012	0	.000	0	y	64.559	216.297	38.625	38.625	1	H1-1b
2189	27	M61	HSS6X6X4	.012	0	.000	0	y	64.559	216.297	38.625	38.625	1	H1-1b
2190	27	M62	HSS6X6X4	.000	0	.000	0	y	71.087	216.297	38.625	38.625	1	H1-1b
2191	27	M59A	W24X62	.040	14.848	.010	0	y	60.139	819	58.807	573.75	1	H1-1b
2192	27	M60A	W24X62	.015	11.53	.005	11.53	y	103.845	819	58.807	226.203	1.373	H1-1b
2193	27	M61A	W24X62	.023	11.305	.008	22.84	y	103.754	819	58.807	573.75	1	H1-1b
2194	27	M62A	W24X62	.023	11.3	.008	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2195	27	M63	W24X62	.023	11.3	.008	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2196	27	M64	W24X62	.022	10.889	.007	0	y	111.828	819	58.807	573.75	1	H1-1b
2197	27	M65	W24X84	.055	14.848	.018	0	y	164.553	1111.5	122.25	840	1	H1-1b
2198	27	M66	W24X62	.046	11.3	.015	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2199	27	M67	W24X62	.046	11.305	.015	22.84	y	103.754	819	58.807	573.75	1	H1-1b
2200	27	M68	W24X62	.046	11.3	.015	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2201	27	M69	W24X62	.046	11.3	.015	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2202	27	M70	W24X62	.043	11.111	.015	0	y	111.828	819	58.807	573.75	1	H1-1b
2203	27	M71	W24X84	.055	14.848	.018	0	y	164.553	1111.5	122.25	840	1	H1-1b
2204	27	M72	W24X62	.046	11.3	.015	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2205	27	M73	W24X62	.046	11.305	.015	22.84	y	103.754	819	58.807	573.75	1	H1-1b
2206	27	M74	W24X62	.046	11.3	.015	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2207	27	M75	W24X62	.046	11.3	.015	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2208	27	M76	W24X62	.043	11.111	.015	0	y	111.828	819	58.807	573.75	1	H1-1b
2209	27	M77	W24X62	.035	14.848	.006	15.152	y	60.139	819	58.807	122.991	1.098	H1-1b
2210	27	M78	W24X62	.023	11.3	.008	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2211	27	M79	W24X62	.023	11.305	.008	22.84	y	103.754	819	58.807	573.75	1	H1-1b
2212	27	M80	W24X62	.023	11.3	.008	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2213	27	M81	W24X62	.023	11.3	.008	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2214	27	M82	W24X62	.022	10.889	.007	0	y	111.828	819	58.807	573.75	1	H1-1b
2215	28	M5	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2216	28	M6	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2217	28	M7	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2218	28	M8	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2219	28	M9	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2220	28	M10	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2221	28	M11	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2222	28	M12	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
2223	28	M13	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2224	28	M14	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2225	28	M15	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2226	28	M16	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2227	28	M17	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2228	28	M18	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2229	28	M19	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2230	28	M20	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2231	28	M21	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2232	28	M22	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2233	28	M23	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2234	28	M24	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2235	28	M25	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2236	28	M26	HSS6X6X4	.029	14.5	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
2237	28	M27	HSS6X6X4	.290	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
2238	28	M28	HSS6X6X4	.291	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
2239	28	M29	HSS6X6X4	.073	14.5	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
2240	28	M30	HSS6X6X4	.085	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
2241	28	M31	HSS6X6X4	.513	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
2242	28	M32	HSS6X6X4	.513	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
2243	28	M33	HSS6X6X4	.093	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
2244	28	M34	HSS6X6X4	.223	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
2245	28	M35	HSS6X6X4	.444	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
2246	28	M36	HSS6X6X4	.444	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
2247	28	M37	HSS6X6X4	.076	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
2248	28	M38	HSS6X6X4	.226	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
2249	28	M39	HSS6X6X4	.444	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
2250	28	M40	HSS6X6X4	.444	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
2251	28	M41	HSS6X6X4	.223	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
2252	28	M42	HSS6X6X4	.223	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
2253	28	M43	HSS6X6X4	.443	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
2254	28	M44	HSS6X6X4	.443	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
2255	28	M45	HSS6X6X4	.223	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
2256	28	M46	HSS6X6X4	.219	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
2257	28	M47	HSS6X6X4	.395	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
2258	28	M48	HSS6X6X4	.393	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1a
2259	28	M49	HSS6X6X4	.219	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
2260	28	M50	HSS6X6X4	.054	14.5	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
2261	28	M51	HSS6X6X4	.214	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
2262	28	M52	HSS6X6X4	.213	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
2263	28	M53	HSS6X6X4	.054	14.5	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
2264	28	M54	HSS6X6X4	.251	0	.000	0	y	100.047	216.297	38.625	38.625	1	H1-1a
2265	28	M55	HSS6X6X4	.062	0	.000	0	y	100.047	216.297	38.625	38.625	1	H1-1b
2266	28	M56	HSS6X6X4	.003	0	.000	0	y	71.878	216.297	38.625	38.625	1	H1-1b
2267	28	M57	HSS6X6X4	.090	0	.000	0	y	118.296	216.297	38.625	38.625	1	H1-1b
2268	28	M58	HSS6X6X4	.024	0	.000	0	y	118.344	216.297	38.625	38.625	1	H1-1b
2269	28	M59	HSS6X6X4	.002	0	.000	0	y	71.087	216.297	38.625	38.625	1	H1-1b
2270	28	M60	HSS6X6X4	.088	0	.000	0	y	64.559	216.297	38.625	38.625	1	H1-1b
2271	28	M61	HSS6X6X4	.085	0	.000	0	y	64.559	216.297	38.625	38.625	1	H1-1b
2272	28	M62	HSS6X6X4	.001	0	.000	0	y	71.087	216.297	38.625	38.625	1	H1-1b
2273	28	M59A	W24X62	.285	15.152	.071	0	y	60.139	819	58.807	573.75	1	H1-1b
2274	28	M60A	W24X62	.110	11.53	.034	11.53	y	103.845	819	58.807	226.201	1.373	H1-1b
2275	28	M61A	W24X62	.165	11.305	.054	22.84	y	103.754	819	58.807	573.75	1	H1-1b
2276	28	M62A	W24X62	.165	11.3	.054	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2277	28	M63	W24X62	.165	11.3	.054	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2278	28	M64	W24X62	.153	10.889	.052	0	y	111.828	819	58.807	573.75	1	H1-1b
2279	28	M65	W24X84	.388	15.152	.128	0	y	164.553	1111.5	122.25	840	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
2280	28	M66	W24X62	.329	11.53	.108	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2281	28	M67	W24X62	.329	11.305	.108	22.84	y	103.754	819	58.807	573.75	1	H1-1b
2282	28	M68	W24X62	.329	11.53	.108	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2283	28	M69	W24X62	.329	11.53	.108	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2284	28	M70	W24X62	.305	11.111	.104	0	y	111.828	819	58.807	573.75	1	H1-1b
2285	28	M71	W24X84	.388	15.152	.128	0	y	164.553	1111.5	122.25	840	1	H1-1b
2286	28	M72	W24X62	.329	11.53	.108	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2287	28	M73	W24X62	.329	11.305	.108	22.84	y	103.754	819	58.807	573.75	1	H1-1b
2288	28	M74	W24X62	.329	11.53	.108	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2289	28	M75	W24X62	.329	11.53	.108	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2290	28	M76	W24X62	.305	11.111	.104	0	y	111.828	819	58.807	573.75	1	H1-1b
2291	28	M77	W24X62	.248	14.848	.042	15.152	y	60.139	819	58.807	122.987	1.098	H1-1b
2292	28	M78	W24X62	.165	11.3	.054	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2293	28	M79	W24X62	.165	11.305	.054	22.84	y	103.754	819	58.807	573.75	1	H1-1b
2294	28	M80	W24X62	.165	11.3	.054	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2295	28	M81	W24X62	.165	11.3	.054	22.83	y	103.845	819	58.807	573.75	1	H1-1b
2296	28	M82	W24X62	.153	10.889	.052	0	y	111.828	819	58.807	573.75	1	H1-1b
2297	29	M5	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2298	29	M6	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2299	29	M7	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2300	29	M8	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2301	29	M9	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2302	29	M10	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2303	29	M11	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2304	29	M12	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2305	29	M13	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2306	29	M14	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2307	29	M15	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2308	29	M16	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2309	29	M17	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2310	29	M18	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2311	29	M19	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2312	29	M20	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2313	29	M21	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2314	29	M22	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2315	29	M23	W24X62	.116	10.146	.006	20.5	z	128.792	819	58.807	573.75	1	H1-1b
2316	29	M24	W24X62	.114	10.062	.006	20.33	z	130.955	819	58.807	573.75	1	H1-1b
2317	29	M25	W24X62	.116	10.146	.006	20.5	z	128.792	819	58.807	573.75	1	H1-1b
2318	29	M26	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2319	29	M27	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2320	29	M28	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2321	29	M29	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2322	29	M30	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2323	29	M31	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2324	29	M32	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2325	29	M33	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2326	29	M34	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2327	29	M35	HSS6X6X4	.000	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2328	29	M36	HSS6X6X4	.000	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2329	29	M37	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2330	29	M38	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2331	29	M39	HSS6X6X4	.000	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2332	29	M40	HSS6X6X4	.000	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2333	29	M41	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2334	29	M42	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2335	29	M43	HSS6X6X4	.000	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2336	29	M44	HSS6X6X4	.000	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
2337	29	M45	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2338	29	M46	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2339	29	M47	HSS6X6X4	.002	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2340	29	M48	HSS6X6X4	.002	0	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2341	29	M49	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2342	29	M50	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2343	29	M51	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2344	29	M52	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2345	29	M53	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2346	29	M54	HSS6X6X4	.005	0	.000	0	y	100.047	216.297	38.625	38.625	1	H1-1b
2347	29	M55	HSS6X6X4	.010	0	.000	0	y	100.047	216.297	38.625	38.625	1	H1-1b
2348	29	M56	HSS6X6X4	.001	0	.000	0	y	71.878	216.297	38.625	38.625	1	H1-1b
2349	29	M57	HSS6X6X4	.005	0	.000	0	y	118.296	216.297	38.625	38.625	1	H1-1b
2350	29	M58	HSS6X6X4	.008	0	.000	0	y	118.344	216.297	38.625	38.625	1	H1-1b
2351	29	M59	HSS6X6X4	.000	0	.000	0	y	71.087	216.297	38.625	38.625	1	H1-1b
2352	29	M60	HSS6X6X4	.012	0	.000	0	y	64.559	216.297	38.625	38.625	1	H1-1b
2353	29	M61	HSS6X6X4	.012	0	.000	0	y	64.559	216.297	38.625	38.625	1	H1-1b
2354	29	M62	HSS6X6X4	.000	0	.000	0	y	71.087	216.297	38.625	38.625	1	H1-1b
2355	29	M59A	W24X62	.000	0	.000	0	z	60.139	819	58.807	573.75	1	H1-1b
2356	29	M60A	W24X62	.000	11.3	.000	0	z	103.845	819	58.807	216.96	1.316	H1-1b
2357	29	M61A	W24X62	.000	0	.000	0	z	103.754	819	58.807	573.75	1	H1-1b
2358	29	M62A	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2359	29	M63	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2360	29	M64	W24X62	.000	0	.000	0	z	111.828	819	58.807	573.75	1	H1-1b
2361	29	M65	W24X84	.000	0	.000	0	z	164.553	1111.5	122.25	840	1	H1-1b
2362	29	M66	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2363	29	M67	W24X62	.000	0	.000	0	z	103.754	819	58.807	573.75	1	H1-1b
2364	29	M68	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2365	29	M69	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2366	29	M70	W24X62	.000	0	.000	0	z	111.828	819	58.807	573.75	1	H1-1b
2367	29	M71	W24X84	.000	0	.000	0	z	164.553	1111.5	122.25	840	1	H1-1b
2368	29	M72	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2369	29	M73	W24X62	.000	0	.000	0	z	103.754	819	58.807	573.75	1	H1-1b
2370	29	M74	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2371	29	M75	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2372	29	M76	W24X62	.000	0	.000	0	z	111.828	819	58.807	573.75	1	H1-1b
2373	29	M77	W24X62	.000	14.848	.000	0	z	60.139	819	58.807	147.413	1.316	H1-1b
2374	29	M78	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2375	29	M79	W24X62	.000	0	.000	0	z	103.754	819	58.807	573.75	1	H1-1b
2376	29	M80	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2377	29	M81	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2378	29	M82	W24X62	.000	0	.000	0	z	111.828	819	58.807	573.75	1	H1-1b
2379	30	M5	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2380	30	M6	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2381	30	M7	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2382	30	M8	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2383	30	M9	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2384	30	M10	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2385	30	M11	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2386	30	M12	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2387	30	M13	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2388	30	M14	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2389	30	M15	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2390	30	M16	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2391	30	M17	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2392	30	M18	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2393	30	M19	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
2394	30	M20	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2395	30	M21	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2396	30	M22	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2397	30	M23	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2398	30	M24	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2399	30	M25	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2400	30	M26	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2401	30	M27	HSS6X6X4	.014	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2402	30	M28	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2403	30	M29	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2404	30	M30	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2405	30	M31	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2406	30	M32	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2407	30	M33	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2408	30	M34	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2409	30	M35	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2410	30	M36	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2411	30	M37	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2412	30	M38	HSS6X6X4	.014	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2413	30	M39	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2414	30	M40	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2415	30	M41	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2416	30	M42	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2417	30	M43	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2418	30	M44	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2419	30	M45	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2420	30	M46	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2421	30	M47	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2422	30	M48	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2423	30	M49	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2424	30	M50	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2425	30	M51	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2426	30	M52	HSS6X6X4	.013	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2427	30	M53	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2428	30	M54	HSS6X6X4	.000	0	.000	0	y	100.047	216.297	38.625	38.625	1	H1-1b
2429	30	M55	HSS6X6X4	.000	0	.000	0	y	100.047	216.297	38.625	38.625	1	H1-1b
2430	30	M56	HSS6X6X4	.017	0	.000	0	y	71.878	216.297	38.625	38.625	1	H1-1b
2431	30	M57	HSS6X6X4	.000	0	.000	0	y	118.296	216.297	38.625	38.625	1	H1-1b
2432	30	M58	HSS6X6X4	.000	0	.000	0	y	118.344	216.297	38.625	38.625	1	H1-1b
2433	30	M59	HSS6X6X4	.016	0	.000	0	y	71.087	216.297	38.625	38.625	1	H1-1b
2434	30	M60	HSS6X6X4	.000	0	.000	0	y	64.559	216.297	38.625	38.625	1	H1-1b
2435	30	M61	HSS6X6X4	.000	0	.000	0	y	64.559	216.297	38.625	38.625	1	H1-1b
2436	30	M62	HSS6X6X4	.016	0	.000	0	y	71.087	216.297	38.625	38.625	1	H1-1b
2437	30	M59A	W24X62	.230	14.848	.008	0	z	60.139	819	58.807	573.75	1	H1-1b
2438	30	M60A	W24X62	.032	11.53	.004	11.53	z	103.845	819	58.807	573.75	1	H1-1b
2439	30	M61A	W24X62	.133	11.305	.006	22.84	z	103.754	819	58.807	573.75	1	H1-1b
2440	30	M62A	W24X62	.133	11.3	.006	22.83	z	103.845	819	58.807	573.75	1	H1-1b
2441	30	M63	W24X62	.133	11.3	.006	22.83	z	103.845	819	58.807	573.75	1	H1-1b
2442	30	M64	W24X62	.123	10.889	.006	0	z	111.828	819	58.807	573.75	1	H1-1b
2443	30	M65	W24X84	.000	0	.000	0	z	164.553	1111.5	122.25	840	1	H1-1b
2444	30	M66	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2445	30	M67	W24X62	.000	0	.000	0	z	103.754	819	58.807	573.75	1	H1-1b
2446	30	M68	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2447	30	M69	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2448	30	M70	W24X62	.000	0	.000	0	z	111.828	819	58.807	573.75	1	H1-1b
2449	30	M71	W24X84	.000	0	.000	0	z	164.553	1111.5	122.25	840	1	H1-1b
2450	30	M72	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
2451	30	M73	W24X62	.000	0	.000	0	z	103.754	819	58.807	573.75	1	H1-1b
2452	30	M74	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2453	30	M75	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2454	30	M76	W24X62	.000	0	.000	0	z	111.828	819	58.807	573.75	1	H1-1b
2455	30	M77	W24X62	.000	14.848	.000	0	z	60.139	819	58.807	573.75	1	H1-1b
2456	30	M78	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2457	30	M79	W24X62	.000	0	.000	0	z	103.754	819	58.807	573.75	1	H1-1b
2458	30	M80	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2459	30	M81	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2460	30	M82	W24X62	.000	0	.000	0	z	111.828	819	58.807	573.75	1	H1-1b
2461	31	M5	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2462	31	M6	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2463	31	M7	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2464	31	M8	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2465	31	M9	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2466	31	M10	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2467	31	M11	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2468	31	M12	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2469	31	M13	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2470	31	M14	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2471	31	M15	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2472	31	M16	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2473	31	M17	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2474	31	M18	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2475	31	M19	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2476	31	M20	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2477	31	M21	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2478	31	M22	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2479	31	M23	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2480	31	M24	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2481	31	M25	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2482	31	M26	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2483	31	M27	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2484	31	M28	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2485	31	M29	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2486	31	M30	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2487	31	M31	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2488	31	M32	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2489	31	M33	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2490	31	M34	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2491	31	M35	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2492	31	M36	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2493	31	M37	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2494	31	M38	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2495	31	M39	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2496	31	M40	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2497	31	M41	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2498	31	M42	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2499	31	M43	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2500	31	M44	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2501	31	M45	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2502	31	M46	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2503	31	M47	HSS6X6X4	.039	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2504	31	M48	HSS6X6X4	.039	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2505	31	M49	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2506	31	M50	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2507	31	M51	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
2508	31	M52	HSS6X6X4	.001	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2509	31	M53	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2510	31	M54	HSS6X6X4	.089	0	.000	0	y	100.047	216.297	38.625	38.625	1	H1-1b
2511	31	M55	HSS6X6X4	.386	0	.000	0	y	100.047	216.297	38.625	38.625	1	H1-1a
2512	31	M56	HSS6X6X4	.002	0	.000	0	y	71.878	216.297	38.625	38.625	1	H1-1b
2513	31	M57	HSS6X6X4	.088	0	.000	0	y	118.296	216.297	38.625	38.625	1	H1-1b
2514	31	M58	HSS6X6X4	.320	0	.000	0	y	118.344	216.297	38.625	38.625	1	H1-1a
2515	31	M59	HSS6X6X4	.000	0	.000	0	y	71.087	216.297	38.625	38.625	1	H1-1b
2516	31	M60	HSS6X6X4	.473	0	.000	0	y	64.559	216.297	38.625	38.625	1	H1-1a
2517	31	M61	HSS6X6X4	.474	0	.000	0	y	64.559	216.297	38.625	38.625	1	H1-1a
2518	31	M62	HSS6X6X4	.001	0	.000	0	y	71.087	216.297	38.625	38.625	1	H1-1b
2519	31	M59A	W24X62	.000	0	.000	0	z	60.139	819	58.807	573.75	1	H1-1b
2520	31	M60A	W24X62	.001	11.3	.000	11.53	y	103.845	819	58.807	216.96	1.316	H1-1b
2521	31	M61A	W24X62	.000	0	.000	0	z	103.754	819	58.807	573.75	1	H1-1b
2522	31	M62A	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2523	31	M63	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2524	31	M64	W24X62	.000	0	.000	0	z	111.828	819	58.807	573.75	1	H1-1b
2525	31	M65	W24X84	.000	0	.000	0	z	164.553	1111.5	122.25	840	1	H1-1b
2526	31	M66	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2527	31	M67	W24X62	.000	0	.000	0	z	103.754	819	58.807	573.75	1	H1-1b
2528	31	M68	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2529	31	M69	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2530	31	M70	W24X62	.000	0	.000	0	z	111.828	819	58.807	573.75	1	H1-1b
2531	31	M71	W24X84	.000	0	.000	0	z	164.553	1111.5	122.25	840	1	H1-1b
2532	31	M72	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2533	31	M73	W24X62	.000	0	.000	0	z	103.754	819	58.807	573.75	1	H1-1b
2534	31	M74	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2535	31	M75	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2536	31	M76	W24X62	.000	0	.000	0	z	111.828	819	58.807	573.75	1	H1-1b
2537	31	M77	W24X62	.000	14.848	.000	0	y	60.139	819	58.807	147.413	1.316	H1-1b
2538	31	M78	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2539	31	M79	W24X62	.000	0	.000	0	z	103.754	819	58.807	573.75	1	H1-1b
2540	31	M80	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2541	31	M81	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2542	31	M82	W24X62	.000	0	.000	0	z	111.828	819	58.807	573.75	1	H1-1b
2543	32	M5	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2544	32	M6	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2545	32	M7	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2546	32	M8	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2547	32	M9	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2548	32	M10	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2549	32	M11	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2550	32	M12	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2551	32	M13	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2552	32	M14	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2553	32	M15	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2554	32	M16	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2555	32	M17	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2556	32	M18	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2557	32	M19	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2558	32	M20	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2559	32	M21	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2560	32	M22	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2561	32	M23	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2562	32	M24	W24X62	.000	0	.000	0	z	130.955	819	58.807	573.75	1	H1-1b
2563	32	M25	W24X62	.000	0	.000	0	z	128.792	819	58.807	573.75	1	H1-1b
2564	32	M26	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
2565	32	M27	HSS6X6X4	.236	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
2566	32	M28	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2567	32	M29	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
2568	32	M30	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
2569	32	M31	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2570	32	M32	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2571	32	M33	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
2572	32	M34	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
2573	32	M35	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2574	32	M36	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2575	32	M37	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
2576	32	M38	HSS6X6X4	.243	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1a
2577	32	M39	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2578	32	M40	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2579	32	M41	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
2580	32	M42	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
2581	32	M43	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2582	32	M44	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2583	32	M45	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
2584	32	M46	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
2585	32	M47	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2586	32	M48	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1	H1-1b
2587	32	M49	HSS6X6X4	.000	14.5	.000	0	y	149.039	216.297	38.625	38.625	1.678	H1-1b
2588	32	M50	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
2589	32	M51	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1b
2590	32	M52	HSS6X6X4	.250	14.5	.000	0	z	149.039	216.297	38.625	38.625	1	H1-1a
2591	32	M53	HSS6X6X4	.000	14.5	.000	0	z	149.039	216.297	38.625	38.625	1.678	H1-1b
2592	32	M54	HSS6X6X4	.005	0	.000	0	y	100.047	216.297	38.625	38.625	1	H1-1b
2593	32	M55	HSS6X6X4	.002	0	.000	0	y	100.047	216.297	38.625	38.625	1	H1-1b
2594	32	M56	HSS6X6X4	.281	0	.000	0	y	71.878	216.297	38.625	38.625	1	H1-1a
2595	32	M57	HSS6X6X4	.003	0	.000	0	y	118.296	216.297	38.625	38.625	1	H1-1b
2596	32	M58	HSS6X6X4	.005	0	.000	0	y	118.344	216.297	38.625	38.625	1	H1-1b
2597	32	M59	HSS6X6X4	.290	0	.000	0	y	71.087	216.297	38.625	38.625	1	H1-1a
2598	32	M60	HSS6X6X4	.001	0	.000	0	y	64.559	216.297	38.625	38.625	1	H1-1b
2599	32	M61	HSS6X6X4	.002	0	.000	0	y	64.559	216.297	38.625	38.625	1	H1-1b
2600	32	M62	HSS6X6X4	.299	0	.000	0	y	71.087	216.297	38.625	38.625	1	H1-1a
2601	32	M59A	W24X62	.000	0	.000	0	z	60.139	819	58.807	573.75	1	H1-1b
2602	32	M60A	W24X62	.002	11.53	.000	11.53	z	103.845	819	58.807	216.96	1.316	H1-1b
2603	32	M61A	W24X62	.000	0	.000	0	z	103.754	819	58.807	573.75	1	H1-1b
2604	32	M62A	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2605	32	M63	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2606	32	M64	W24X62	.000	0	.000	0	z	111.828	819	58.807	573.75	1	H1-1b
2607	32	M65	W24X84	.000	0	.000	0	z	164.553	1111.5	122.25	840	1	H1-1b
2608	32	M66	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2609	32	M67	W24X62	.000	0	.000	0	z	103.754	819	58.807	573.75	1	H1-1b
2610	32	M68	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2611	32	M69	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2612	32	M70	W24X62	.000	0	.000	0	z	111.828	819	58.807	573.75	1	H1-1b
2613	32	M71	W24X84	.000	0	.000	0	z	164.553	1111.5	122.25	840	1	H1-1b
2614	32	M72	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2615	32	M73	W24X62	.000	0	.000	0	z	103.754	819	58.807	573.75	1	H1-1b
2616	32	M74	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2617	32	M75	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2618	32	M76	W24X62	.000	0	.000	0	z	111.828	819	58.807	573.75	1	H1-1b
2619	32	M77	W24X62	.000	15.152	.000	15.152	z	60.139	819	58.807	112.034	1	H1-1b
2620	32	M78	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2621	32	M79	W24X62	.000	0	.000	0	z	103.754	819	58.807	573.75	1	H1-1b

Member AISC 13th(360-05): LRFD Steel Code Checks (By Combination) (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	phi*Pnc[k]	phi*Pnt[k]	phi*Mny...	phi*Mnz...	Cb	Eqn
2622	32	M80	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2623	32	M81	W24X62	.000	0	.000	0	z	103.845	819	58.807	573.75	1	H1-1b
2624	32	M82	W24X62	.000	0	.000	0	z	111.828	819	58.807	573.75	1	H1-1b

Base Load Reactions

CIC – RA 5-9; Ft. Stewart, Georgia

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
399	13	N15	-.777	0	78.036	0	0	NC
400	13	N16	0	0	40.951	0	0	NC
401	13	N17	0	0	40.17	0	0	NC
402	13	N18	0	0	78.346	0	0	NC
403	13	N19	0	0	78.346	0	0	NC
404	13	N20	0	0	40.17	0	0	NC
405	13	N24	0	0	39.456	0	0	NC
406	13	N23	0	0	69.721	0	0	NC
407	13	N22	0	0	70.004	0	0	NC
408	13	N21	0	0	39.456	0	0	NC
409	13	N25	.251	0	20.218	0	0	NC
410	13	N26	0	-10.893	45.997	0	0	NC
411	13	N27	0	-11.322	46.234	0	0	NC
412	13	N28	0	0	19.817	0	0	NC
413	13	N1000	NC	NC	LOCKED	NC	NC	NC
414	13	N1001	NC	NC	LOCKED	NC	NC	NC
415	13	Totals:	0	0	1496.602			
416	13	COG (ft):	X: 30.667	Y: 71.677	Z: 14.447			
417	14	N2	.538	0	46.81	0	0	NC
418	14	N1	0	0	23.624	0	0	NC
419	14	N3	0	0	46.043	0	0	NC
420	14	N4	0	17.632	27.229	0	0	NC
421	14	N5	0	12.604	46.057	0	0	NC
422	14	N6	0	0	79.956	0	0	NC
423	14	N7	0	0	79.956	0	0	NC
424	14	N8	0	-10.941	38.06	0	0	NC
425	14	N12	0	0	35.497	0	0	NC
426	14	N11	0	0	69.039	0	0	NC
427	14	N10	0	0	69.039	0	0	NC
428	14	N9	0	-5.036	31.019	0	0	NC
429	14	N13	0	0	35.497	0	0	NC
430	14	N14	0	0	69.039	0	0	NC
431	14	N15	-.687	0	68.776	0	0	NC
432	14	N16	0	0	36.207	0	0	NC
433	14	N17	0	0	35.49	0	0	NC
434	14	N18	0	0	69.024	0	0	NC
435	14	N19	0	0	69.024	0	0	NC
436	14	N20	0	0	35.49	0	0	NC
437	14	N24	0	0	34.861	0	0	NC
438	14	N23	0	0	60.587	0	0	NC
439	14	N22	0	0	60.823	0	0	NC
440	14	N21	0	0	34.861	0	0	NC
441	14	N25	.149	0	17.891	0	0	NC
442	14	N26	0	-10.937	41.606	0	0	NC
443	14	N27	0	-11.295	41.725	0	0	NC
444	14	N28	0	0	17.562	0	0	NC
445	14	N1000	NC	NC	LOCKED	NC	NC	NC
446	14	N1001	NC	NC	LOCKED	NC	NC	NC
447	14	Totals:	0	-7.973	1320.794			
448	14	COG (ft):	X: 30.667	Y: 71.679	Z: 14.44			
449	15	N2	-5.382	0	42.588	0	0	NC
450	15	N1	0	0	23.624	0	0	NC
451	15	N3	0	0	50.265	0	0	NC
452	15	N4	0	18.994	28.545	0	0	NC
453	15	N5	0	13.898	47.701	0	0	NC
454	15	N6	0	0	79.956	0	0	NC
455	15	N7	0	0	79.956	0	0	NC

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
456	15	N8	0	-9.579	36.743	0	0	NC
457	15	N12	0	0	35.497	0	0	NC
458	15	N11	0	0	69.039	0	0	NC
459	15	N10	0	0	69.039	0	0	NC
460	15	N9	0	-3.743	29.376	0	0	NC
461	15	N13	0	0	35.497	0	0	NC
462	15	N14	0	0	69.039	0	0	NC
463	15	N15	-6.419	0	64.722	0	0	NC
464	15	N16	0	0	40.261	0	0	NC
465	15	N17	0	0	35.49	0	0	NC
466	15	N18	0	0	69.024	0	0	NC
467	15	N19	0	0	69.024	0	0	NC
468	15	N20	0	0	35.49	0	0	NC
469	15	N24	0	0	34.861	0	0	NC
470	15	N23	0	0	61.446	0	0	NC
471	15	N22	0	0	61.718	0	0	NC
472	15	N21	0	0	34.861	0	0	NC
473	15	N25	-5.399	0	13.967	0	0	NC
474	15	N26	0	-9.578	44.635	0	0	NC
475	15	N27	0	-9.992	40.866	0	0	NC
476	15	N28	0	0	17.562	0	0	NC
477	15	N1000	NC	NC	LOCKED	NC	NC	NC
478	15	N1001	NC	NC	LOCKED	NC	NC	NC
479	15	Totals:	-17.199	0	1320.794			
480	15	COG (ft):	X: 30.667	Y: 71.679	Z: 14.44			
481	16	N2	.637	0	46.881	0	0	NC
482	16	N1	0	0	23.624	0	0	NC
483	16	N3	0	0	45.972	0	0	NC
484	16	N4	0	-.39	9.808	0	0	NC
485	16	N5	0	-2.555	26.81	0	0	NC
486	16	N6	0	0	79.956	0	0	NC
487	16	N7	0	0	79.956	0	0	NC
488	16	N8	0	-28.962	55.48	0	0	NC
489	16	N12	0	0	35.497	0	0	NC
490	16	N11	0	0	69.039	0	0	NC
491	16	N10	0	0	69.039	0	0	NC
492	16	N9	0	-20.182	50.266	0	0	NC
493	16	N13	0	0	35.497	0	0	NC
494	16	N14	0	0	69.039	0	0	NC
495	16	N15	-.691	0	68.774	0	0	NC
496	16	N16	0	0	36.209	0	0	NC
497	16	N17	0	0	35.49	0	0	NC
498	16	N18	0	0	69.024	0	0	NC
499	16	N19	0	0	69.024	0	0	NC
500	16	N20	0	0	35.49	0	0	NC
501	16	N24	0	0	34.861	0	0	NC
502	16	N23	0	0	49.697	0	0	NC
503	16	N22	0	0	49.914	0	0	NC
504	16	N21	0	0	34.861	0	0	NC
505	16	N25	.053	0	17.823	0	0	NC
506	16	N26	0	-27.489	52.583	0	0	NC
507	16	N27	0	-27.818	52.615	0	0	NC
508	16	N28	0	0	17.562	0	0	NC
509	16	N1000	NC	NC	LOCKED	NC	NC	NC
510	16	N1001	NC	NC	LOCKED	NC	NC	NC
511	16	Totals:	0	-107.394	1320.794			
512	16	COG (ft):	X: 30.667	Y: 71.679	Z: 14.44			

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
513	17	N2	-34.123	0	22.09	0	0	NC
514	17	N1	0	0	23.624	0	0	NC
515	17	N3	0	0	70.764	0	0	NC
516	17	N4	0	19.557	29.09	0	0	NC
517	17	N5	0	13.362	47.02	0	0	NC
518	17	N6	0	0	79.956	0	0	NC
519	17	N7	0	0	79.956	0	0	NC
520	17	N8	0	-9.015	36.198	0	0	NC
521	17	N12	0	0	35.497	0	0	NC
522	17	N11	0	0	69.039	0	0	NC
523	17	N10	0	0	69.039	0	0	NC
524	17	N9	0	-4.279	30.056	0	0	NC
525	17	N13	0	0	35.497	0	0	NC
526	17	N14	0	0	69.039	0	0	NC
527	17	N15	-36.556	0	43.405	0	0	NC
528	17	N16	0	0	61.577	0	0	NC
529	17	N17	0	0	35.49	0	0	NC
530	17	N18	0	0	69.024	0	0	NC
531	17	N19	0	0	69.024	0	0	NC
532	17	N20	0	0	35.49	0	0	NC
533	17	N24	0	0	34.861	0	0	NC
534	17	N23	0	0	61.546	0	0	NC
535	17	N22	0	0	61.581	0	0	NC
536	17	N21	0	0	34.861	0	0	NC
537	17	N25	-36.715	0	-8.184	0	0	NC
538	17	N26	0	-9.787	66.923	0	0	NC
539	17	N27	0	-9.839	40.765	0	0	NC
540	17	N28	0	0	17.562	0	0	NC
541	17	N1000	NC	NC	LOCKED	NC	NC	NC
542	17	N1001	NC	NC	LOCKED	NC	NC	NC
543	17	Totals:	-107.394	0	1320.794			
544	17	COG (ft):	X: 30.667	Y: 71.679	Z: 14.44			
545	18	N2	.641	0	51.477	0	0	NC
546	18	N1	0	0	25.93	0	0	NC
547	18	N3	0	0	50.563	0	0	NC
548	18	N4	0	6.381	17.277	0	0	NC
549	18	N5	0	2.934	36.723	0	0	NC
550	18	N6	0	0	88.045	0	0	NC
551	18	N7	0	0	88.045	0	0	NC
552	18	N8	0	-25.051	54.379	0	0	NC
553	18	N12	0	0	39.008	0	0	NC
554	18	N11	0	0	76.032	0	0	NC
555	18	N10	0	0	76.032	0	0	NC
556	18	N9	0	-16.457	47.925	0	0	NC
557	18	N13	0	0	39.008	0	0	NC
558	18	N14	0	0	76.032	0	0	NC
559	18	N15	-.759	0	75.718	0	0	NC
560	18	N16	0	0	39.768	0	0	NC
561	18	N17	0	0	39	0	0	NC
562	18	N18	0	0	76.015	0	0	NC
563	18	N19	0	0	76.015	0	0	NC
564	18	N20	0	0	39	0	0	NC
565	18	N24	0	0	38.307	0	0	NC
566	18	N23	0	0	58.836	0	0	NC
567	18	N22	0	0	59.086	0	0	NC
568	18	N21	0	0	38.307	0	0	NC
569	18	N25	.118	0	19.56	0	0	NC

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
570	18	N26	0	-23.986	53.598	0	0	NC
571	18	N27	0	-24.366	53.708	0	0	NC
572	18	N28	0	0	19.254	0	0	NC
573	18	N1000	NC	NC	LOCKED	NC	NC	NC
574	18	N1001	NC	NC	LOCKED	NC	NC	NC
575	18	Totals:	0	-80.546	1452.65			
576	18	COG (ft):	X: 30.667	Y: 71.678	Z: 14.446			
577	19	N2	-25.429	0	32.883	0	0	NC
578	19	N1	0	0	25.93	0	0	NC
579	19	N3	0	0	69.157	0	0	NC
580	19	N4	0	21.341	31.739	0	0	NC
581	19	N5	0	14.871	51.88	0	0	NC
582	19	N6	0	0	88.045	0	0	NC
583	19	N7	0	0	88.045	0	0	NC
584	19	N8	0	-10.09	39.917	0	0	NC
585	19	N12	0	0	39.008	0	0	NC
586	19	N11	0	0	76.032	0	0	NC
587	19	N10	0	0	76.032	0	0	NC
588	19	N9	0	-4.53	32.768	0	0	NC
589	19	N13	0	0	39.008	0	0	NC
590	19	N14	0	0	76.032	0	0	NC
591	19	N15	-27.658	0	56.692	0	0	NC
592	19	N16	0	0	58.794	0	0	NC
593	19	N17	0	0	39	0	0	NC
594	19	N18	0	0	76.015	0	0	NC
595	19	N19	0	0	76.015	0	0	NC
596	19	N20	0	0	39	0	0	NC
597	19	N24	0	0	38.307	0	0	NC
598	19	N23	0	0	67.723	0	0	NC
599	19	N22	0	0	67.837	0	0	NC
600	19	N21	0	0	38.307	0	0	NC
601	19	N25	-27.458	0	.055	0	0	NC
602	19	N26	0	-10.71	64.353	0	0	NC
603	19	N27	0	-10.882	44.821	0	0	NC
604	19	N28	0	0	19.254	0	0	NC
605	19	N1000	NC	NC	LOCKED	NC	NC	NC
606	19	N1001	NC	NC	LOCKED	NC	NC	NC
607	19	Totals:	-80.545	0	1452.65			
608	19	COG (ft):	X: 30.667	Y: 71.678	Z: 14.446			
609	20	N2	.566	0	51.424	0	0	NC
610	20	N1	0	0	25.93	0	0	NC
611	20	N3	0	0	50.616	0	0	NC
612	20	N4	0	19.897	30.343	0	0	NC
613	20	N5	0	14.303	51.158	0	0	NC
614	20	N6	0	0	88.045	0	0	NC
615	20	N7	0	0	88.045	0	0	NC
616	20	N8	0	-11.535	41.313	0	0	NC
617	20	N12	0	0	39.008	0	0	NC
618	20	N11	0	0	76.032	0	0	NC
619	20	N10	0	0	76.032	0	0	NC
620	20	N9	0	-5.098	33.49	0	0	NC
621	20	N13	0	0	39.008	0	0	NC
622	20	N14	0	0	76.032	0	0	NC
623	20	N15	-.756	0	75.72	0	0	NC
624	20	N16	0	0	39.766	0	0	NC
625	20	N17	0	0	39	0	0	NC
626	20	N18	0	0	76.015	0	0	NC

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
627	20	N19	0	0	76.015	0	0	NC
628	20	N20	0	0	39	0	0	NC
629	20	N24	0	0	38.307	0	0	NC
630	20	N23	0	0	67.004	0	0	NC
631	20	N22	0	0	67.268	0	0	NC
632	20	N21	0	0	38.307	0	0	NC
633	20	N25	.19	0	19.611	0	0	NC
634	20	N26	0	-11.573	45.365	0	0	NC
635	20	N27	0	-11.974	45.541	0	0	NC
636	20	N28	0	0	19.254	0	0	NC
637	20	N1000	NC	NC	LOCKED	NC	NC	NC
638	20	N1001	NC	NC	LOCKED	NC	NC	NC
639	20	Totals:	0	-5.98	1452.65			
640	20	COG (ft):	X: 30.667	Y: 71.678	Z: 14.446			
641	21	N2	-3.874	0	48.257	0	0	NC
642	21	N1	0	0	25.93	0	0	NC
643	21	N3	0	0	53.783	0	0	NC
644	21	N4	0	20.918	31.33	0	0	NC
645	21	N5	0	15.274	52.391	0	0	NC
646	21	N6	0	0	88.045	0	0	NC
647	21	N7	0	0	88.045	0	0	NC
648	21	N8	0	-10.513	40.326	0	0	NC
649	21	N12	0	0	39.008	0	0	NC
650	21	N11	0	0	76.032	0	0	NC
651	21	N10	0	0	76.032	0	0	NC
652	21	N9	0	-4.128	32.258	0	0	NC
653	21	N13	0	0	39.008	0	0	NC
654	21	N14	0	0	76.032	0	0	NC
655	21	N15	-5.054	0	72.68	0	0	NC
656	21	N16	0	0	42.807	0	0	NC
657	21	N17	0	0	39	0	0	NC
658	21	N18	0	0	76.015	0	0	NC
659	21	N19	0	0	76.015	0	0	NC
660	21	N20	0	0	39	0	0	NC
661	21	N24	0	0	38.307	0	0	NC
662	21	N23	0	0	67.648	0	0	NC
663	21	N22	0	0	67.94	0	0	NC
664	21	N21	0	0	38.307	0	0	NC
665	21	N25	-3.972	0	16.668	0	0	NC
666	21	N26	0	-10.554	47.637	0	0	NC
667	21	N27	0	-10.997	44.897	0	0	NC
668	21	N28	0	0	19.254	0	0	NC
669	21	N1000	NC	NC	LOCKED	NC	NC	NC
670	21	N1001	NC	NC	LOCKED	NC	NC	NC
671	21	Totals:	-12.9	0	1452.65			
672	21	COG (ft):	X: 30.667	Y: 71.678	Z: 14.446			
673	22	N2	.352	0	28.107	0	0	NC
674	22	N1	0	0	14.174	0	0	NC
675	22	N3	0	0	27.605	0	0	NC
676	22	N4	0	10.013	15.79	0	0	NC
677	22	N5	0	7.065	27.003	0	0	NC
678	22	N6	0	0	47.974	0	0	NC
679	22	N7	0	0	47.974	0	0	NC
680	22	N8	0	-7.131	23.383	0	0	NC
681	22	N12	0	0	21.298	0	0	NC
682	22	N11	0	0	41.423	0	0	NC
683	22	N10	0	0	41.423	0	0	NC

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
684	22	N9	0	-3.518	19.243	0	0	NC
685	22	N13	0	0	21.298	0	0	NC
686	22	N14	0	0	41.423	0	0	NC
687	22	N15	-.413	0	41.265	0	0	NC
688	22	N16	0	0	21.725	0	0	NC
689	22	N17	0	0	21.294	0	0	NC
690	22	N18	0	0	41.415	0	0	NC
691	22	N19	0	0	41.415	0	0	NC
692	22	N20	0	0	21.294	0	0	NC
693	22	N24	0	0	20.917	0	0	NC
694	22	N23	0	0	36.005	0	0	NC
695	22	N22	0	0	36.141	0	0	NC
696	22	N21	0	0	20.917	0	0	NC
697	22	N25	.061	0	10.715	0	0	NC
698	22	N26	0	-7.098	25.337	0	0	NC
699	22	N27	0	-7.304	25.382	0	0	NC
700	22	N28	0	0	10.537	0	0	NC
701	22	N1000	NC	NC	LOCKED	NC	NC	NC
702	22	N1001	NC	NC	LOCKED	NC	NC	NC
703	22	Totals:	0	-7.973	792.476			
704	22	COG (ft):	X: 30.667	Y: 71.679	Z: 14.44			
705	23	N2	-5.567	0	23.885	0	0	NC
706	23	N1	0	0	14.174	0	0	NC
707	23	N3	0	0	31.827	0	0	NC
708	23	N4	0	11.375	17.106	0	0	NC
709	23	N5	0	8.359	28.646	0	0	NC
710	23	N6	0	0	47.974	0	0	NC
711	23	N7	0	0	47.974	0	0	NC
712	23	N8	0	-5.769	22.067	0	0	NC
713	23	N12	0	0	21.298	0	0	NC
714	23	N11	0	0	41.423	0	0	NC
715	23	N10	0	0	41.423	0	0	NC
716	23	N9	0	-2.225	17.599	0	0	NC
717	23	N13	0	0	21.298	0	0	NC
718	23	N14	0	0	41.423	0	0	NC
719	23	N15	-6.145	0	37.211	0	0	NC
720	23	N16	0	0	25.779	0	0	NC
721	23	N17	0	0	21.294	0	0	NC
722	23	N18	0	0	41.415	0	0	NC
723	23	N19	0	0	41.415	0	0	NC
724	23	N20	0	0	21.294	0	0	NC
725	23	N24	0	0	20.917	0	0	NC
726	23	N23	0	0	36.864	0	0	NC
727	23	N22	0	0	37.037	0	0	NC
728	23	N21	0	0	20.917	0	0	NC
729	23	N25	-5.488	0	6.79	0	0	NC
730	23	N26	0	-5.739	28.366	0	0	NC
731	23	N27	0	-6.001	24.523	0	0	NC
732	23	N28	0	0	10.537	0	0	NC
733	23	N1000	NC	NC	LOCKED	NC	NC	NC
734	23	N1001	NC	NC	LOCKED	NC	NC	NC
735	23	Totals:	-17.199	0	792.476			
736	23	COG (ft):	X: 30.667	Y: 71.679	Z: 14.44			
737	24	N2	.452	0	28.178	0	0	NC
738	24	N1	0	0	14.174	0	0	NC
739	24	N3	0	0	27.534	0	0	NC
740	24	N4	0	-8.009	-1.631	0	0	NC

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
741	24	N5	0	-8.093	7.756	0	0	NC
742	24	N6	0	0	47.974	0	0	NC
743	24	N7	0	0	47.974	0	0	NC
744	24	N8	0	-25.152	40.804	0	0	NC
745	24	N12	0	0	21.298	0	0	NC
746	24	N11	0	0	41.423	0	0	NC
747	24	N10	0	0	41.423	0	0	NC
748	24	N9	0	-18.664	38.49	0	0	NC
749	24	N13	0	0	21.298	0	0	NC
750	24	N14	0	0	41.423	0	0	NC
751	24	N15	-.417	0	41.262	0	0	NC
752	24	N16	0	0	21.727	0	0	NC
753	24	N17	0	0	21.294	0	0	NC
754	24	N18	0	0	41.415	0	0	NC
755	24	N19	0	0	41.415	0	0	NC
756	24	N20	0	0	21.294	0	0	NC
757	24	N24	0	0	20.917	0	0	NC
758	24	N23	0	0	25.115	0	0	NC
759	24	N22	0	0	25.232	0	0	NC
760	24	N21	0	0	20.917	0	0	NC
761	24	N25	-.035	0	10.647	0	0	NC
762	24	N26	0	-23.649	36.314	0	0	NC
763	24	N27	0	-23.827	36.272	0	0	NC
764	24	N28	0	0	10.537	0	0	NC
765	24	N1000	NC	NC	LOCKED	NC	NC	NC
766	24	N1001	NC	NC	LOCKED	NC	NC	NC
767	24	Totals:	0	-107.394	792.476			
768	24	COG (ft):	X: 30.667	Y: 71.679	Z: 14.44			
769	25	N2	-34.308	0	3.387	0	0	NC
770	25	N1	0	0	14.174	0	0	NC
771	25	N3	0	0	52.326	0	0	NC
772	25	N4	0	11.938	17.651	0	0	NC
773	25	N5	0	7.823	27.965	0	0	NC
774	25	N6	0	0	47.974	0	0	NC
775	25	N7	0	0	47.974	0	0	NC
776	25	N8	0	-5.205	21.522	0	0	NC
777	25	N12	0	0	21.298	0	0	NC
778	25	N11	0	0	41.423	0	0	NC
779	25	N10	0	0	41.423	0	0	NC
780	25	N9	0	-2.761	18.28	0	0	NC
781	25	N13	0	0	21.298	0	0	NC
782	25	N14	0	0	41.423	0	0	NC
783	25	N15	-36.282	0	15.894	0	0	NC
784	25	N16	0	0	47.095	0	0	NC
785	25	N17	0	0	21.294	0	0	NC
786	25	N18	0	0	41.415	0	0	NC
787	25	N19	0	0	41.415	0	0	NC
788	25	N20	0	0	21.294	0	0	NC
789	25	N24	0	0	20.917	0	0	NC
790	25	N23	0	0	36.964	0	0	NC
791	25	N22	0	0	36.899	0	0	NC
792	25	N21	0	0	20.917	0	0	NC
793	25	N25	-36.803	0	-15.36	0	0	NC
794	25	N26	0	-5.947	50.653	0	0	NC
795	25	N27	0	-5.848	24.423	0	0	NC
796	25	N28	0	0	10.537	0	0	NC
797	25	N1000	NC	NC	LOCKED	NC	NC	NC

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
798	25	N1001	NC	NC	LOCKED	NC	NC	NC
799	25	Totals:	-107.394	0	792.476			
800	25	COG (ft):	X: 30.667	Y: 71.679	Z: 14.44			
801	26	N2	.02	0	3.019	0	0	NC
802	26	N1	0	0	1.822	0	0	NC
803	26	N3	0	0	2.99	0	0	NC
804	26	N4	0	.983	2.395	0	0	NC
805	26	N5	0	.725	3.142	0	0	NC
806	26	N6	0	0	3.49	0	0	NC
807	26	N7	0	0	3.49	0	0	NC
808	26	N8	0	-.563	2.696	0	0	NC
809	26	N12	0	0	2.307	0	0	NC
810	26	N11	0	0	2.936	0	0	NC
811	26	N10	0	0	2.936	0	0	NC
812	26	N9	0	-.275	2.349	0	0	NC
813	26	N13	0	0	2.307	0	0	NC
814	26	N14	0	0	2.936	0	0	NC
815	26	N15	-.028	0	3.14	0	0	NC
816	26	N16	0	0	2.55	0	0	NC
817	26	N17	0	0	2.306	0	0	NC
818	26	N18	0	0	2.936	0	0	NC
819	26	N19	0	0	2.936	0	0	NC
820	26	N20	0	0	2.306	0	0	NC
821	26	N24	0	0	2.281	0	0	NC
822	26	N23	0	0	2.852	0	0	NC
823	26	N22	0	0	2.864	0	0	NC
824	26	N21	0	0	2.281	0	0	NC
825	26	N25	.007	0	1.802	0	0	NC
826	26	N26	0	-.426	2.937	0	0	NC
827	26	N27	0	-.443	2.73	0	0	NC
828	26	N28	0	0	1.574	0	0	NC
829	26	N1000	NC	NC	LOCKED	NC	NC	NC
830	26	N1001	NC	NC	LOCKED	NC	NC	NC
831	26	Totals:	0	0	74.31			
832	26	COG (ft):	X: 30.7	Y: 71.912	Z: 13.438			
833	27	N2	.061	0	6.168	0	0	NC
834	27	N1	0	0	3.075	0	0	NC
835	27	N3	0	0	6.081	0	0	NC
836	27	N4	0	2.548	3.696	0	0	NC
837	27	N5	0	1.851	6.276	0	0	NC
838	27	N6	0	0	10.785	0	0	NC
839	27	N7	0	0	10.785	0	0	NC
840	27	N8	0	-1.264	4.794	0	0	NC
841	27	N12	0	0	4.681	0	0	NC
842	27	N11	0	0	9.324	0	0	NC
843	27	N10	0	0	9.324	0	0	NC
844	27	N9	0	-.496	3.82	0	0	NC
845	27	N13	0	0	4.681	0	0	NC
846	27	N14	0	0	9.324	0	0	NC
847	27	N15	-.094	0	9.257	0	0	NC
848	27	N16	0	0	4.748	0	0	NC
849	27	N17	0	0	4.68	0	0	NC
850	27	N18	0	0	9.321	0	0	NC
851	27	N19	0	0	9.321	0	0	NC
852	27	N20	0	0	4.68	0	0	NC
853	27	N24	0	0	4.595	0	0	NC
854	27	N23	0	0	8.266	0	0	NC

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
855	27	N22	0	0	8.3	0	0	NC
856	27	N21	0	0	4.595	0	0	NC
857	27	N25	.029	0	2.275	0	0	NC
858	27	N26	0	-1.293	5.323	0	0	NC
859	27	N27	0	-1.344	5.377	0	0	NC
860	27	N28	0	0	2.255	0	0	NC
861	27	N1000	NC	NC	LOCKED	NC	NC	NC
862	27	N1001	NC	NC	LOCKED	NC	NC	NC
863	27	Totals:	0	0	175.809			
864	27	COG (ft):	X: 30.665	Y: 71.665	Z: 14.5			
865	28	N2	.355	-.005	43.668	0	0	NC
866	28	N1	.005	-.003	21.802	0	0	NC
867	28	N3	.011	-.005	43.176	0	0	NC
868	28	N4	.006	18.09	26.224	0	0	NC
869	28	N5	.01	13.145	44.527	0	0	NC
870	28	N6	.018	-.009	76.466	0	0	NC
871	28	N7	.018	-.009	76.466	0	0	NC
872	28	N8	.008	-8.946	33.973	0	0	NC
873	28	N12	.007	-.003	33.191	0	0	NC
874	28	N11	.015	-.008	66.103	0	0	NC
875	28	N10	.015	-.008	66.103	0	0	NC
876	28	N9	.006	-3.497	27.058	0	0	NC
877	28	N13	.007	-.004	33.191	0	0	NC
878	28	N14	.014	-.008	66.103	0	0	NC
879	28	N15	-.732	-.007	65.576	0	0	NC
880	28	N16	.007	-.004	33.718	0	0	NC
881	28	N17	.007	-.004	33.183	0	0	NC
882	28	N18	.013	-.008	66.088	0	0	NC
883	28	N19	.013	-.008	66.088	0	0	NC
884	28	N20	.007	-.003	33.183	0	0	NC
885	28	N24	.006	-.003	32.58	0	0	NC
886	28	N23	.011	-.007	58.621	0	0	NC
887	28	N22	.011	-.007	58.86	0	0	NC
888	28	N21	.006	-.004	32.58	0	0	NC
889	28	N25	.137	-.002	16.083	0	0	NC
890	28	N26	.007	-9.153	37.775	0	0	NC
891	28	N27	.007	-9.516	38.109	0	0	NC
892	28	N28	.003	-.002	15.989	0	0	NC
893	28	N1000	NC	NC	LOCKED	NC	NC	NC
894	28	N1001	NC	NC	LOCKED	NC	NC	NC
895	28	Totals:	0	0	1246.484			
896	28	COG (ft):	X: 30.665	Y: 71.665	Z: 14.5			
897	29	N2	.074	0	.053	0	0	NC
898	29	N1	0	0	0	0	0	NC
899	29	N3	0	0	-.053	0	0	NC
900	29	N4	0	-1.416	-1.369	0	0	NC
901	29	N5	0	-1.243	-1.578	0	0	NC
902	29	N6	0	0	0	0	0	NC
903	29	N7	0	0	0	0	0	NC
904	29	N8	0	-1.416	1.369	0	0	NC
905	29	N12	0	0	0	0	0	NC
906	29	N11	0	0	0	0	0	NC
907	29	N10	0	0	0	0	0	NC
908	29	N9	0	-1.242	1.578	0	0	NC
909	29	N13	0	0	0	0	0	NC
910	29	N14	0	0	0	0	0	NC
911	29	N15	-.003	0	-.002	0	0	NC

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
912	29	N16	0	0	.002	0	0	NC
913	29	N17	0	0	0	0	0	NC
914	29	N18	0	0	0	0	0	NC
915	29	N19	0	0	0	0	0	NC
916	29	N20	0	0	0	0	0	NC
917	29	N24	0	0	0	0	0	NC
918	29	N23	0	0	-.868	0	0	NC
919	29	N22	0	0	-.882	0	0	NC
920	29	N21	0	0	0	0	0	NC
921	29	N25	-.071	0	-.05	0	0	NC
922	29	N26	0	-1.338	.933	0	0	NC
923	29	N27	0	-1.317	.868	0	0	NC
924	29	N28	0	0	0	0	0	NC
925	29	N1000	NC	NC	LOCKED	NC	NC	NC
926	29	N1001	NC	NC	LOCKED	NC	NC	NC
927	29	Totals:	0	-7.973	0			
928	29	COG (ft):	NC	NC	NC			
929	30	N2	-5.846	0	-4.169	0	0	NC
930	30	N1	0	0	0	0	0	NC
931	30	N3	0	0	4.169	0	0	NC
932	30	N4	0	-.054	-.052	0	0	NC
933	30	N5	0	.051	.065	0	0	NC
934	30	N6	0	0	0	0	0	NC
935	30	N7	0	0	0	0	0	NC
936	30	N8	0	-.054	.052	0	0	NC
937	30	N12	0	0	0	0	0	NC
938	30	N11	0	0	0	0	0	NC
939	30	N10	0	0	0	0	0	NC
940	30	N9	0	.051	-.065	0	0	NC
941	30	N13	0	0	0	0	0	NC
942	30	N14	0	0	0	0	0	NC
943	30	N15	-5.735	0	-4.056	0	0	NC
944	30	N16	0	0	4.056	0	0	NC
945	30	N17	0	0	0	0	0	NC
946	30	N18	0	0	0	0	0	NC
947	30	N19	0	0	0	0	0	NC
948	30	N20	0	0	0	0	0	NC
949	30	N24	0	0	0	0	0	NC
950	30	N23	0	0	-.009	0	0	NC
951	30	N22	0	0	.014	0	0	NC
952	30	N21	0	0	0	0	0	NC
953	30	N25	-5.621	0	-3.975	0	0	NC
954	30	N26	0	.021	3.961	0	0	NC
955	30	N27	0	-.014	.009	0	0	NC
956	30	N28	0	0	0	0	0	NC
957	30	N1000	NC	NC	LOCKED	NC	NC	NC
958	30	N1001	NC	NC	LOCKED	NC	NC	NC
959	30	Totals:	-17.2	0	0			
960	30	COG (ft):	NC	NC	NC			
961	31	N2	.248	0	.177	0	0	NC
962	31	N1	0	0	0	0	0	NC
963	31	N3	0	0	-.177	0	0	NC
964	31	N4	0	-27.782	-26.84	0	0	NC
965	31	N5	0	-23.448	-29.749	0	0	NC
966	31	N6	0	0	0	0	0	NC
967	31	N7	0	0	0	0	0	NC
968	31	N8	0	-27.749	26.84	0	0	NC

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
969	31	N12	0	0	0	0	0	NC
970	31	N11	0	0	0	0	0	NC
971	31	N10	0	0	0	0	0	NC
972	31	N9	0	-23.391	29.749	0	0	NC
973	31	N13	0	0	0	0	0	NC
974	31	N14	0	0	0	0	0	NC
975	31	N15	-.009	0	-.006	0	0	NC
976	31	N16	0	0	.006	0	0	NC
977	31	N17	0	0	0	0	0	NC
978	31	N18	0	0	0	0	0	NC
979	31	N19	0	0	0	0	0	NC
980	31	N20	0	0	0	0	0	NC
981	31	N24	0	0	0	0	0	NC
982	31	N23	0	-.011	-16.802	0	0	NC
983	31	N22	0	-.011	-16.849	0	0	NC
984	31	N21	0	0	0	0	0	NC
985	31	N25	-.239	0	-.169	0	0	NC
986	31	N26	0	-25.549	17.018	0	0	NC
987	31	N27	0	-25.479	16.802	0	0	NC
988	31	N28	0	0	0	0	0	NC
989	31	N1000	NC	NC	LOCKED	NC	NC	NC
990	31	N1001	NC	NC	LOCKED	NC	NC	NC
991	31	Totals:	0	-153.42	0			
992	31	COG (ft):	NC	NC	NC			
993	32	N2	-49.454	0	-35.23	0	0	NC
994	32	N1	0	0	0	0	0	NC
995	32	N3	.045	0	35.23	0	0	NC
996	32	N4	0	.729	.704	0	0	NC
997	32	N5	-.001	-.693	-.88	0	0	NC
998	32	N6	0	0	0	0	0	NC
999	32	N7	0	0	0	0	0	NC
1000	32	N8	0	.729	-.704	0	0	NC
1001	32	N12	0	0	0	0	0	NC
1002	32	N11	0	0	0	0	0	NC
1003	32	N10	0	0	0	0	0	NC
1004	32	N9	.001	-.693	.88	0	0	NC
1005	32	N13	0	0	0	0	0	NC
1006	32	N14	0	0	0	0	0	NC
1007	32	N15	-51.293	0	-36.236	0	0	NC
1008	32	N16	.047	0	36.236	0	0	NC
1009	32	N17	0	0	0	0	0	NC
1010	32	N18	0	0	0	0	0	NC
1011	32	N19	0	0	0	0	0	NC
1012	32	N20	0	0	0	0	0	NC
1013	32	N24	0	0	0	0	0	NC
1014	32	N23	0	0	.13	0	0	NC
1015	32	N22	0	0	-.177	0	0	NC
1016	32	N21	0	0	0	0	0	NC
1017	32	N25	-52.815	0	-37.31	0	0	NC
1018	32	N26	.051	-.268	37.487	0	0	NC
1019	32	N27	0	.197	-.13	0	0	NC
1020	32	N28	0	0	0	0	0	NC
1021	32	N1000	NC	NC	LOCKED	NC	NC	NC
1022	32	N1001	NC	NC	LOCKED	NC	NC	NC
1023	32	Totals:	-153.419	0	0			
1024	32	COG (ft):	NC	NC	NC			

Foundation Design

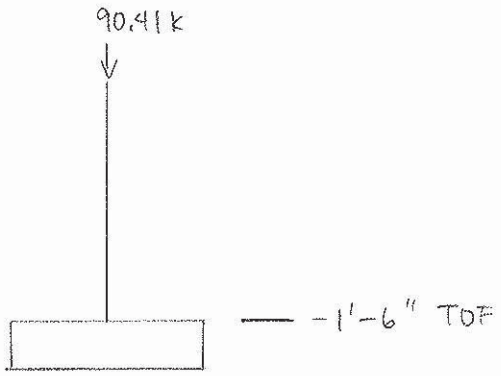
CIC – RA 5-9; Ft. Stewart, Georgia

Subject CIC Detachment 5-9
Footing Design - Interior Column (NO BRACE)

Footing Node : N6

Load Case 13 : ASD 16-10 = D + RLL

$F_x = 0$
$F_y = 0$
$F_z = 90.41\ k \downarrow$



CONC WT = 145 pcf
Soil WT = 120 pcf

Footing Compression Check

Allowable Soil Bearing Capacity = 2 ksf

$F_z = 90.41\ k$ Try 8' x 8' x 2'

Footing Wt : $\frac{(145\ pcf)(8' \times 8' \times 2')}{1000\ lb/k} = 18.56\ k$

Soil wt : $\frac{(120\ pcf)(8' \times 8' \times 1.5')}{1000\ lb/k} = 11.52\ k$

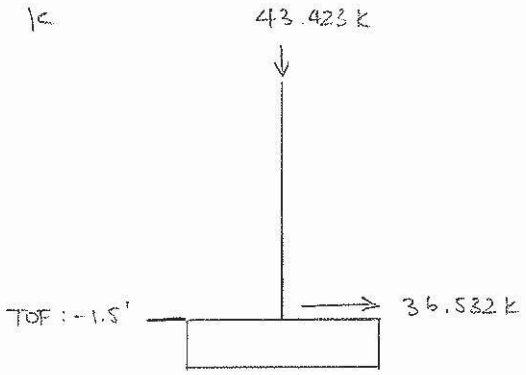
$\frac{90.41k + 18.56\ k + 11.52k}{(8' \times 8')} = 1.88\ ksf < 2.0\ ksf$ ✓ ok

Conclusion: use 8' x 8' x 2' Footings For Interior Non-braced Columns.

Footing Node : N15

LOAD CASE 17 : ASD 16 - 126.1 = D + 0.7E

F_x = -36.532 k
F_y = 0
F_z = 43.423 k



CONC WEIGHT = 145 pcf
Soil WEIGHT = 120 pcf

FOOTING SLIDING CHECK

Try 8' x 8' x 2' Footing

Downward Force : $43.423\,k + \frac{(145\,pcf)(8' \times 8' \times 2')}{1000\ lb/k} + \frac{(120\,pcf)(8' \times 8' \times 15')}{1000\ lb/k}$

$= 73.503\,k$

$\mu = 0.5$

μ (net downward force) $= 0.5(73.503\,k) = 36.752\,k$

$36.752\,k > F_x = 36.532\,k$ ok ✓

* Footing Uplift check not needed b/c it is negligible compared to superimposed dead load.

Footing Compression Check

Allowable Soil Bearing : 2 ksf

Load Case 20 : $D + 0.75W + 0.75L_r = 75.737\ k$

Soil weight $= \frac{(120\ pcf)(8' \times 8' \times 1.5')}{1000\ lb/k} = 11.52\ k$

$\frac{75.737k + 11.52\ k}{(8' \times 8')} = 1.36\ ksf < 2.0\ ksf$ ok ✓

Conclusion: Use 8' x 8' x 2' footings for interior braced columns.

Use 8' x 8' x 2' for all columns. 8' x 8' x 2' adequate by inspection.

APPENDIX D

ELECTRICAL CALCULATIONS

CORRECTED FINAL SUBMISSION
12 SEPTEMBER 2012

Criminal Investigation Command **Field Operations Building** RA 5-9 Adapt-Build Fort Stewart, GA	**Parsons Brinckerhoff** 465 Spring Park Place Herndon, VA 20170

Date:6/21/2012

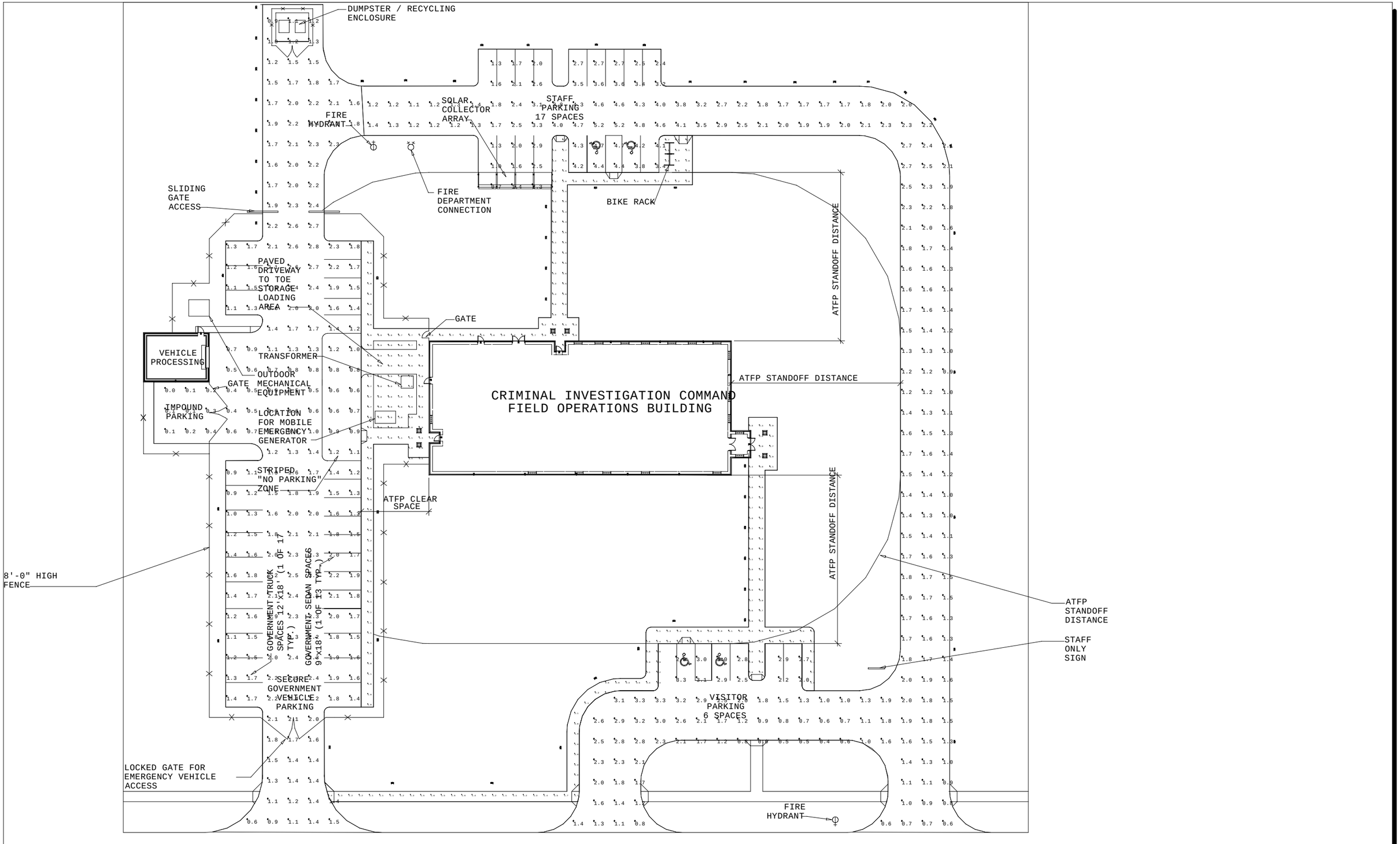
Calculation Summary

Label	Units	Avg	Max	Min	Avg/Min	Max/Min
002 Vestibule_Floor	Fc	17.14	21.2	11.9	1.44	1.78
003 - Vestibule North_Floor	Fc	16.59	19.9	12.6	1.32	1.58
102 Corridor_Floor	Fc	25.50	30.9	16.3	1.56	1.90
103 Men_Floor	Fc	18.30	26.0	8.2	2.23	3.17
104 Women_Floor	Fc	16.88	23.8	8.8	1.92	2.70
105 - Corridor_Floor	Fc	23.68	31.7	9.8	2.42	3.23
106 - Multi Purpose_Workplane	Fc	41.19	62.7	14.2	2.90	4.42
107 SAC_Workplane	Fc	32.79	52.5	16.8	1.95	3.13
108 Large Interview_Workplane	Fc	54.65	67.5	34.5	1.58	1.96
109 Small Interview_Workplane	Fc	40.17	55.0	25.1	1.60	2.19
110 Small Interview_Workplane	Fc	40.63	55.7	26.3	1.54	2.12
111 Photo ID_Workplane	Fc	41.72	56.1	25.0	1.67	2.24
112 - Polygraph Office_Workplane	Fc	31.74	46.1	18.3	1.73	2.52
113 - Polygraph Exam_Workplane	Fc	30.25	39.8	20.2	1.50	1.97
114 - Observation Room_Workplane	Fc	41.89	55.7	26.2	1.60	2.13
115 - Suspect Waiting_Workplane	Fc	29.20	45.4	10.2	2.86	4.45
116 - Supsect Toilet_Floor	Fc	5.17	5.9	3.6	1.44	1.64
117 - Corridor_Floor	Fc	26.11	40.6	6.4	4.08	6.34
118 Evidence Custodian_Workplane	Fc	34.73	48.3	20.9	1.66	2.31
119 Evidence Depository_Workplan	Fc	62.78	78.7	33.4	1.88	2.36
120 Evidence Processing_Workplan	Fc	37.16	54.4	20.6	1.80	2.64
121 Duty Agent_Workplane	Fc	34.15	48.8	17.1	2.00	2.85
122 Storage_Floor	Fc	25.70	33.7	14.7	1.75	2.29
123 Arms Vault_Floor	Fc	20.68	25.5	16.0	1.29	1.59
124 Telecom Rm_Floor	Fc	10.41	13.0	6.8	1.53	1.91
125 Electrical_Floor	Fc	20.68	26.2	14.6	1.42	1.79
126 Mechanical_Floor	Fc	15.71	22.7	6.9	2.28	3.29
127 - Corridor_Floor	Fc	26.18	32.4	11.0	2.38	2.95
128 - RA CIC_Workplane	Fc	40.54	55.6	26.0	1.56	2.14
129 - Team Chief_Workplane	Fc	39.75	54.8	25.8	1.54	2.12
130 - Investigative OPS Tech_Floor	Fc	36.84	52.6	21.7	1.70	2.42
131 - Drug Supression_Workplane	Fc	39.76	54.8	25.8	1.54	2.12
132 - Special Agents_Workplane	Fc	36.83	52.6	21.6	1.71	2.44
133 - Special Agents_Workplane	Fc	43.42	59.8	18.9	2.30	3.16
134 - Recycle Closet_Floor_1	Fc	19.08	24.7	13.7	1.39	1.80
135 Admin OPS_Workplane	Fc	44.63	62.7	16.2	2.75	3.87
136 Shower_Floor	Fc	14.42	18.1	8.3	1.74	2.18
137 - Janitor_Floor	Fc	9.35	10.1	8.4	1.11	1.20

Criminal Investigation Command
Field Operations Building
RA 5-9
Adapt-Build
Fort Stewart, GA

Parsons Brinckerhoff
465 Spring Park Place
Herndon, VA 20170

Date:6/21/2012


DUMPSTER / RECYCLING ENCLOSURE
SOLAR COLLECTOR ARRAY
STAFF PARKING 17 SPACES
FIRE HYDRANT
FIRE DEPARTMENT CONNECTION
BIKE RACK
SLIDING GATE ACCESS
PAVED DRIVEWAY TO TOE STORAGE
LOADING AREA
GATE
ATFP STANDOFF DISTANCE
VEHICLE PROCESSING
TRANSFORMER
OUTDOOR GATE MECHANICAL EQUIPMENT
CRIMINAL INVESTIGATION COMMAND
FIELD OPERATIONS BUILDING
ATFP STANDOFF DISTANCE
IMPOUND PARKING
LOCATION FOR MOBILE EMERGENCY GENERATOR
STRIPED "NO PARKING" ZONE
ATFP CLEAR SPACE
8'-0" HIGH FENCE
GOVERNMENT TRUCK SPACES 12'x18' (1 OF 17 TYP.)
GOVERNMENT SEDAN SPACES 9'x18' (1 OF 13 TYP.)
SECURE GOVERNMENT VEHICLE PARKING
VISITOR PARKING 6 SPACES
ATFP STANDOFF DISTANCE
ATFP STANDOFF DISTANCE
STAFF ONLY SIGN
LOCKED GATE FOR EMERGENCY VEHICLE ACCESS
FIRE HYDRANT
PRIMARY ACCESS ROAD

Calculation Summary						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
North Road_Planar	Fc	2.02	5.2	0.4	5.05	13.00
North Sidewalk_Planar	Fc	1.87	4.4	0.5	3.74	8.80
South Sidewalk_Planar_1	Fc	2.82	4.6	0.8	3.53	5.75
West Road_Planar	Fc	1.52	2.8	0.0	N.A.	N.A.

APPENDIX E

ENERGY MODELING

CORRECTED FINAL SUBMISSION
12 SEPTEMBER 2012

Energy Modeling Approach and Simulation Parameters

(This process is specifically written to address the Detachment 24 Building, however the process for modeling the other three buildings is essentially the same.)

Comparison

The "Alternative 1" is set up as the Baseline Alternative, which complies with ASHRAE 90.1-2007. "Alternative 2" and "Alternative 3" are set up as Design Alternatives. The form, fabric, and system information between "Alternative 2" and "Alternative 3" is the same. The two Design Alternatives differ in the primary cooling plant – "Alternative 2" uses a cooling tower and "Alternative 3" uses an air-cooled chiller.

Per ASHRAE 90.1-2007 requirements, the following are included in the model:

- Energy parameters are set to calculate 8760 simulation hours.
- Alternative 1 is set as the "Base Alternative" for "Economic comparison."
- Alternative 1 is set as the "Base Alternative" for "Performance rating method" and Alternative 1 is set to "Rotate and average PRM results."

Weather Data

The weather data is taken from the Department of Energy website as a *.bin file, changed to a *.tmy file, and imported into the Trane TRACE 700 weather library.

Weather overrides have been set for the 1% ASHRAE Summer Design Cooling and 99.6% for the Winter Design Heating, per ASHRAE 90.1-2007 energy simulation requirements.

Energy Cost Rates

Annual energy costs are determined using state average unit prices from EIA, which is updated annually on EIA's website (www.eia.doe.gov).

Schedules and Internal Loads

Schedules are set to model hourly variations in occupancy, lighting power, miscellaneous equipment power, and HVAC system operations, and are defined separately for each day of the week and holidays per ASHRAE 90.1-2007 requirement. Modeling the thermostat set points is explained below.

Occupancy

The expected occupancy for the CIDC building is from 0630 to 2000. Due to TRACE's limitations dealing with fractional hours, the hours from 0600 to 0700 are staffed at 50 percent, and the hours from 0700

to 2000 are staffed at 100 percent for Monday to Sunday and 0 percent from midnight to midnight for holidays. Occupancy is defined room-by-room according to the Standard Design Criteria.

Lights

The lighting schedule is set to match the occupancy schedule with the exception that during unoccupied hours, the lighting power is set to 5 percent to account for emergency lighting. In the Baseline Building, the lighting power density is defined at the template level. In the Design Alternatives, the lighting power density is defined at the room level as the lighting power density requirements are satisfied via Space-by-Space Method.

In the design alternatives, the lighting power densities are reduced by 10% for any space that has occupancy sensors, per ASHRAE 189.1 requirements for energy modeling.

Miscellaneous Equipment

This loading is defined with the Occupancy Schedule. Miscellaneous equipment defines receptacle loads, exclusively. Area-based loading is derived from ASHRAE 90.1-1989 and is assumed to be 0.75 W/sf.

Ventilation

Vent schedules match the occupancy schedule as the intent is to close outdoor air dampers during unoccupied mode, and the system shall re-circulate air to maintain temperature drift points.

The Design Alternatives apply ASHRAE 62.1 ventilation requirements on a template and room level. The template defines the typical space-type as “Office space” and any rooms that deviate from this space-type are defined at the room level. The option to “Apply ASHRAE Std 62.1-2004/2007” is selected and the “System Ventilation Flag” is set to “ASHRAE Standard 62.1-2004/2007.” This sets the program to use equations from ASHRAE 62.1 to calculate the system-level ventilation requirement, based on the room ventilation requirements. Per ASHRAE 90.1, demand control ventilation (DCV) is required for the Command Conference Room, Multi-purpose Lounge, Large Interview Room (Room 281), and Suspect Waiting Room. These rooms are served by the Primary and Secondary VAV Systems, therefore, these two systems have their “System Ventilation Flags” set to “ASHRAE 62.1-2004/2007 w/ Vent Reset.” Proportional control is selected allowing the outdoor air controller to adjust the outdoor air intake flow proportionally between the minimum ventilation flow and the design ventilation flow.

Zone distribution effectiveness for cooling is defined as 100 percent based on a ceiling supply and ceiling return and 100 percent for heating assuming the “worst case scenario” for a ceiling supply and ceiling return.

ASHRAE 90.1, G3.1.2.5 requires that ventilation rates for the Baseline and Design Alternatives be the same. In order to ensure this requirement, the Baseline Building ventilation rates are determined by taking the total ventilation requirement for all systems in the design case, totaled, and divided by the building area. This provides for a ventilation rate per area for the Baseline Building. The application of ASHRAE 62.1 Standard is disabled, and the ventilation rates previously calculated are applied for cooling

and heating modes. At the system level, the “System ventilation flag” is defined as “Sum Room OA Reqs.” This sets the program to sum the (user-defined) individual room ventilation requirements to calculate the system-level ventilation requirement.

In both Baseline and Design Alternatives, “people-averaging” is not used – the ventilation rates are based on highest, user-defined occupancy.

Room exhaust rates are calculated based on ASHRAE 62.1 requirements and are the same in the Baseline and Design Alternatives.

Thermostat Set Points

Schedules are not defined for thermostat set points. Cooling and heating dry bulb temperatures, relative humidity, and cooling and heating drift points are defined. TRACE allows the room temperature to drift to the user-defined temperature drift point during the hours in which the Occupancy Schedule reads 5 percent or less; if the Occupancy Schedule reads greater than 5 percent, the thermostat will try to control the room to the design room dry bulb temperature.

Thermostat sensors are located at the zone level per ASHRAE 90.1, Section 6.4.3.1.1.

Building Form

The “Spaces” in Autodesk Revit bring door, window, wall, partition, roof, and floor information into Trane TRACE via gbXML.

The National Renewable Energy Laboratory (NREL) published a report on the typical infiltration rates for large office buildings based on ASHRAE 90.1-1989, the latest version which includes infiltration requirements. Since air barrier requirements are introduced in ASHRAE 90.1-2010 and 189.1-2009, tests were performed on large office buildings to compare results. The infiltration rates are labeled in terms of air changes per hour. The 1989 values are used as the baseline infiltration and the 2010 values are used as the design. The maximum infiltration rates (which occur during non-operating hours), for the baseline and design, are modeled for perimeter zones and for the core zones. A “Utilization Schedule” is created to step down the infiltration rates by a specified percentage during occupancy. The schedule is applied to all spaces, and each space is distinguished by perimeter zone or core zone. This set-up simulates a lower infiltration rate during occupancy, and the design case models a lower all-around infiltration rate based on the envelope requirements from ASHRAE 90.1-2010 and 189.1-2009.*Roofs*

Roof area and orientation is determined by projecting the roof line over a floor plan layout and determining the projected area of the roof over each space and is divided according to orientation. The actual area is determined by developing a multiplication factor from the cosine-based relationship between the projected area and the actual roof area. The angle for this calculation is determined by converting the slope, 4:12, to degrees. The pitch angle is taken from the vertical plane and rotates toward the sky; therefore the 4:12 slope from the 90° vertical plane gives TRACE’s roof pitch.

The TRACE program is limited in accurately modeling a building with an attic space, so a substitute is provided. The heat transfer from the roof to the plenum is modeled as a single construction element – the roof is modeled with roof components and the gypsum board and insulation layers separating the attic and the plenum.

Shading Devices

The shading devices modeled are unique to each building. This device is applied over window opening in the exterior wall.The Battalion HQ shading device is modeled as equivalent to the design intent by considering the Projection Factor for the designed shading device and applying a shading device that provides the same Projection Factor. Per ASHRAE 90.1 requirements, the shading device is applied only to the Design Alternative; manual internal shading devices are not modeled in either the Baseline Building or the Design Alternatives.

Walls

Walls are derived from the “Spaces” created in the Revit model. Adjacencies (or absence of) define interior and exterior walls. Partitions are defined at the template level to have a miniscule U-factor (U=10^-7) to negate the estimation of heat transfer across partitions – this prevents the system coils sizing from being affected by a non-existent load.

Floors

ASHRAE 90.1 provides a minimum F-value (the perimeter heat loss factor for slab-on-grade, expressed in Btu/h·ft·F°) whereas the TRACE input is in the form of a U-value. The conversion is determined by calculating heat loss with the F-value and dividing by area of slab to acquire loss per square foot.

Building Fabric

Per ASHRAE 90.1 requirement, the model is set to calculate heat loss/gain for heat transfer via conduction, internal loads, or solar through the time delay based on actual mass – the program calculates the room specific mass (in lb/sf of floor area).

Custom library construction types are built specifically for this project… The Baseline Building is modeled with envelope values defined by ASHRAE 90.1 for the appropriate Climate Zone. Per ASHRAE 90.1 requirements, the construction types mandated for the Baseline model are as follows: Roofs – Insulation entirely above deck, Above-grade walls – Steel-framed. Slab-on-grade floors shall match the F-factor for unheated slabs from the same tables.

Per ASHRAE 90.1 requirements, all roof surfaces in the Baseline Building are modeled with a reflectivity of 0.30. This translates to TRACE by defining the “Outside shortwave (solar) absorptivity” as 0.7.

Systems

Baseline Building

According to ASHRAE 90.1, the Baseline Building system is a constant volume Packaged Single Zone Air Conditioner with a Fossil fuel furnace. ASHRAE 90.1 requires that for this system, each thermal block is modeled with its own HVAC system. The Baseline Building system in TRACE is the "Single Zone" under the "Constant Volume – Non-mixing" system category. This system has supply fans ("cooling fan") and heating and cooling coils at the zone level and a return fan at the system level.

ASHRAE 90.1 Table G.3.1.2.6A indicates that air-side economizers are required to be modeled in the Baseline Building for the project's climate zone, 3B. Table G.3.1.2.6B states that the high-limit shutoff temperature for the climate zone is 75°F DB. This is addressed in …

On the Energy Parameters dialog box, the "Apply ECB/PRM rules to fan sizing" option is checked and ASHRAE 90.1-2007 is selected from the drop-down menu. This tells TRACE uses the rules stipulated in Section G3.1.2.9 to calculate fan energy rate for energy analysis. This supersedes the fan full load energy rates input on the "Fans" tab under "Create Systems." The fan cycling schedule is set to cycle with all loads, as defined on the "Fans" tab.

Section G3.1.2.8 states that system design supply airflow rates for the Baseline Building shall be based on a supply air/room air temperature difference of 20°F. The thermostat settings for cooling dry bulb and heating dry bulb are 75°F and 70°F, respectively, so in the "Temp/Humidity" tab under "Create Systems," the cooling supply air max and min are set to 55°F and the heating supply air max and min are set to 90°F.

The Baseline Building coil capacities are set to 115% and 125% of the design capacity for the cooling and heating coils, respectively. Should the number of unmet load hours for Design Alternative exceed the Baseline Building by more than 50, simulated capacities in the Baseline Building shall be decreased incrementally and the building re-simulated until the unmet load hours are within 50 of the unmet load hours of the proposed design. If unmet load hours for the Design Alternative or Baseline Building exceed 300, simulated capacities shall be increased incrementally, and the building with unmet loads re-simulated until unmet load hours are reduced to 300 or less.

Design Alternative1

Central systems include the two VAV systems – one which serves the "Administrative Areas" of the building and the other serving the "Special Uses Area" of the building. The system type is variable air volume with baseboard heating about the exterior zones. The Administrative Area system is labeled "Primary – VAV w/ BB" and the Special Uses system is labeled "Secondary – VAV w/ BB." A central fan, optional exhaust/return fan, preheat coil, and cooling coil is defined at the system level. Baseboard heaters and VAV terminals (auxiliary fans) are defined at the zone level. The TRACE program begins the simulation by calculating what effect the operation of the OA-controlled baseboard units will have on the room's drift temperature. This heat output is determined by the outdoor air reset schedule. For these systems, the "Reset per worst case room" is set to "Off" and "Use system default outside air reset" is checked – the system default to a reset schedule defined for the system type. In this system, the default reset schedule assumes that the output of the baseboard units is proportional to the room heating-thermostat-to-outside-air temperature difference. During setback periods, the baseboard

heating output is modulated downward proportionally to the amount of degrees setback from the daytime heating setpoint. The heat output of the OA-controlled baseboard unit adds additional heat gain to the space to offset the conduction heat loss. When the drift temperature rises above the hour's cooling thermostat set point, the VAV box opens and delivers a proportionate quantity of supply air to the space – enough cool supply air to bring down and maintain the space temperature according to the thermostat setpoint. So long as the room drift temperature is below the cooling thermostat setpoint this hour, the VAV box is fully closed. While the drift temperature is within the dead band region, there is no air movement and absolutely no cooling can be provided by the main system VAV box. Should the skin heating system not supply enough heat to satisfy the space heating load, the drift temperature will fall below this hour's heating thermostat setpoint.

These systems have air-side economizers set to monitor outdoor dry-bulb temperature.

Spaces that require heating only, i.e. vestibules, are handled by the "Unit Heaters" system type under the "Heating Only" system category. The system is labeled as "CUHs – Vestibules." The system schematic defines a fan and heating coil at the zone level. Each of the individual vestibules and the mechanical rooms are assigned to their own individual zones, therefore TRACE assigns a fan and heating coil to each room. The vestibules have no ventilation requirements set at the rooms, so the coil does not factor in condition ventilation air.

In order to satisfy the ventilation requirements for the Electrical Room, the "Ventilation and Heating" system type is applied (under the "Heating Only" system category). The system is labeled as "FCU – Elec," and the fan and heating coil are set to the system level, therefore only the Electrical Room is applied to this system. The system supplies a constant volume of heated supply air and the heating coil is cycled to meet varying loads. When heating is not needed, the system attempts to bring the space temperatures down using unconditioned ventilation air. The "Return Air Path" is defined as being a "Plenum" return. This allows TRACE to account for loads from the roof, lights, etc in the return air going to the system. The requirement for satisfying cooling is ventilation air, so the room is set to 10 air changes per hour. TRACE does not recognize this air flow rate as ventilation air.

This same system is set up for the Mechanical Room, since the Mechanical Room will have its own dedicated fans and coils. The requirement for satisfying cooling is ventilation air, so the room is set to 6 air changes per hour. TRACE does not recognize this air flow rate as ventilation air.

The Evidence Depository Room requires separate heating, cooling, and ventilation. This is satisfied with the "Fan Coil" system type under the "Constant Volume – Non-mixing" system category. The system is labeled "FCU – Evid Dep" and consists of a zone level fan and heating/cooling coil. TRACE treats this system as a separate fan coil unit, including a fan, cooling coil, and heating coil, located in each room. The program assumes that the fan coil unit is a four-pipe arrangement with heating and cooling coil available year-round. The unit supplies a constant volume of conditioned air to the room, and the coils are cycled to meet the varying load. When the room drift-temperature rises above the room heating thermostat, the heating coil is de-activated, allowing the space temperature to drift upward. Since the supply air will be at the return/outside air dry bulb temperature, scheduling outside air into the space

will temper this effect to some degree. When the room drift-temperature drops below the room heating thermostat, the heating coil is modulated to produce a supply air dry bulb temperature that will bring the room temperature up to the heating thermostat.

Telecommunications Rooms 1 and 2 have similar system setups. These rooms are modeled with separate systems because Telecomm Room 1 does not utilize a cooling coil, and so the cooling coil is placed on a "DUMMY" plant, and the plants will be sized separately according to the load it needs to handle.

The TRACE program requires all spaces to be assigned to systems and all system components to be assigned to a plant regardless of whether the space is being conditioned. This includes interstitial spaces. To circumvent adding additional energy consumption by the system that will not "see" the space, a "DUMMY" system is set in place in which these spaces will be assigned. The particulars on how energy circumvention takes place at the plants set for this system.

Design Alternative 2

The second design alternative differs in the Primary and Secondary System selection—rather than VAV with Skin Baseboard Heating, the systems are set as Fan-Powered Terminal Units with Reheat on the plenum inlet. The other system settings remain unchanged from the first design alternative.

Daylighting Controls

Daylighting controls are utilized throughout all perimeter spaces with windows. To model this, a "Daylighting Controls Definition" is created. Geometry, daylighting control type, room parameters, glass, construction, and internal shade parameters are set here for all Alternatives. The Baseline Building is modeled with no daylighting controls and the Design Alternatives have daylighting controls available, 100%. Daylighting that is added to a space that has no fenestration is ignored by the program. The daylighting controller is the "Std Stepped Controller" template. This controller is added to the "Daylighting Reference Pt 1" under the "Room Parameters" tab.

Plants

Plant capacities are not user-defined. When the value is left blank, TRACE automatically determines plant capacity by summing the coil capacities attached to the plant. The "Equipment type" and "Heat rejection type" determines the equipments' unloading curves and fundamental energy rates. These pieces of equipment use "Standard" curve types – this selection indicates that a combination of ARI unloading curves and an ambient modification curve will be used to determine the power consumed at each of the hourly load conditions.

Baseline Building

According to ASHRAE 90.1 requirements, the cooling and heating plants for this project size is direct expansion cooling and fossil fuel furnace heating. The plants are labeled as "Cooling plant – 001" and

"Heating plant – 002." The cooling plant has an "air-cooled unitary" piece of equipment attached with an air-cooled condenser. The heating plant has a "gas-fired heat exchanger" attached.

The cooling equipment type is defined as the "90.1-07 Min PTAC New Cons > 15 MBh Cap." The sequencing type is defined as "Single" as there is only one piece of equipment that handles the entire cooling load. The equipment is set to reject condenser heat to the "heat rejection equipment," i.e. the air-cooled condenser. The heat rejection equipment is defined as a "90.1 Min Air Cooled Condenser." The energy rate is defined by TRACE's library of minimum efficiency values from ASHRAE 90.1.The heating equipment is defined as the "90.1-07 Min Gas Furnace < 225 MBh." The energy rate is defined according to the ASHRAE 90.1 requirements.

Design Alternatives 1

The Design Alternatives are set up with a main cooling plant and a main heating plant. These are labeled as "Cooling plant – 001" and "Heating plant – 002," respectively. Addition cooling plants are in place to handle cooling equipment not addressed by the main cooling plant, e.g. direct expansion for a stand-alone system. "DUMMY" plants are in place to host the "DUMMY" systems required to satisfy TRACE's requirement for every coil to be hosted by a plant without affection equipment and plant capacity calculations. The "DUMMY" plants are scheduled to "Off" – the equipment is arbitrarily defined as the equipment will not be functioning and therefore do not affect the load or energy consumption.

In the first Design Alternative (TRACE Alternative 2: Design w/ CT), the equipment type is a "water-cooled unitary" unit with a "cooling tower" and "condenser water pump." The equipment type is defined as "90.1-07 Min Other Heat SS/SP 135-240 MBh." Sequencing type is "Single" since there is one water-cooled unit. The equipment is set to reject condenser heat to the "Heat rejection equipment," the "90.1 Min Cooling Tower."

To ensure maximum effectiveness of the fan coil unit systems, a "Micro-Chiller" plant is modeled to satisfy the cooling load for those spaces. The Micro-Chiller rejects its heat to the Cooling Tower. TRACE is currently incapable of applying systems to specific plant components, so modeling the Micro-Chiller under the same plant as the water-cooled unitary equipment is not feasible. To get the performance benefit of running rejecting heat to an otherwise running cooling tower, the Micro-Chiller plant load is specified to exceed 50% of the total system load. This way, the cooling tower is modeled separately from the cooling tower assigned to the water-cooled unitary equipment, but mimics the heat rejection equipment performance as if the water-cooled unitary equipment and the Micro-Chiller were utilizing the same cooling tower.

The RA 5-9 and the Detachment 24 each have one boiler. The Battalion HQ and the RA 10-15 have two pieces of equipment under the "Heating plant – 002"–both of which are labeled as boilers ("Boiler – 002" and "Boiler – 003"). The two-boiler plants are set so TRACE sizes them to 60% of the total heating load.

Design Alternative 2

The plant used in the second design alternative is an “Air-Cooled Chiller.” Since a chiller is modeled as the primary plant, a Micro-Chiller is not required for the alternative.

Secondly, the loads satisfied by the Micro-Chiller in the first design alternative are distinguished. There are two “air-cooled unitary” units with “air-cooled condenser” units – one of which applies to the Evidence Depository and the other to the Telecommunications Room 2, as these systems are using direct expansion cooling. These are labeled as “Air-cooled condenser – Evid Dep” and “Air-cooled condenser – TR#2.” These units’ equipment types are set to “90.1-07 Min Room AC w/o louvers < 8MBh.”

Base Utilities

Base utilities are used to model loads that are not otherwise calculated by the TRACE program. These loads include exterior lighting and domestic hot water load. To model these loads, the hourly demand, plant (source), and load schedule is specified.

Exterior Lighting

The ext lighting is defined through creating a new "base utility" in TRACE. The requirement for ASHRAE/LEED is to calculate power consumption for the year. ASHRAE requires that the lighting is controlled by a combination of photo sensors and time switches, depending on whether the system is set for dusk-to-dawn operation. This will be handled by creating a new schedule for this base utility. The schedule parameters will be based on the Equinox, so the average amount of daylight for each hour through the span of 24 hours will be proportional to the amount of energy consumed by the ext lighting in the same span of 24 on each hour on a daily basis for an entire year. Using this approach will give accurate energy consumption by the ext lighting for the year, but the estimated energy consumption on a monthly basis is constant, which is not accurate.

The domestic hot water load is modeled as a base utility labeled “Domestic Hot Water Load.” In the Design Alternative, the plant satisfying the load is “Heating plant – 002.” This plant uses a combination of the boiler and solar hot water system to satisfy the load. The Baseline Building uses a separate plant to represent the domestic hot water heater. This equipment type is labeled as “90.1-04 Min (Res) 300-2,500 Mbh.” In both the Baseline Building and the Design Alternative, the hourly demand is the same and the schedules are both set to the occupancy schedule, “People – CIC Det24 Full Year.”

The solar hot water (SHW) system is modeled as a base utility with a negative demand—the domestic water load and heating load covered by the “Heating plant – 002” is credited by the base utility. The maximum capacity of the SHW system is determined based on highest solar insolation value for a fixed number of solar hot water panels. The subsequent monthly capacities are determined based on month’s solar insolation value, the total hours of daylight in a day (determined by parallel for the 20th of each month, based on the solstice), and the number of panels. After the capacity of the SHW system is determined for each month, each month is represented as a percentage of the maximum capacity and is input in a “Utilization Schedule.” Each month is modeled with approximate times of sunrise and sunset for the respective month with the percentage of maximum capacity—the percent capacity is defined

between sunrise and sunset and zero from sunset to sunrise. This schedule is applied to the base utility to credit the “Heating plant – 002” the appropriate amount of load throughout the year.

End of Summary

	Collector Info					Domestic Hot Water			Space Heating							Renewable Energy Production	
Month	Insolation Value (BTU/sf*day)	Day to Month Conversion	DHW flat plate collector area (sf)	System Capacity (BTU/month)	Effective System Capacity (BTU/month)	Domestic Hot Water Load per Day (BTU/day)	Domestic Hot Water Load per Month (BTU/month)	Extra Capacity not used by DHW Load (BTU/month)	Peak Heating Load (BTU/h)	HDD per Month	Assumed Indoor Temperature (°F)	Outdoor Air Temperature (°F)	Heating Requirement (BTU/month)	Heating Requirment for the Month (kBTU)	DHW + Space Heating Requirement (BTU/month)	SHW Capacity Credited to DHW Load (BTU/month)	Extra Capacity Credited to Space Heating (BTU/month)
Jan	794.7	26	240.9	4977524	4479772	133106	3460756	1019016	38000	480	68	27.1	10703178	10703	14163934	3460756	1019016
Feb	1043.8	24	240.9	6034834	5431351	133106	3194544	2236807	38000	350	68	27.1	7804401	7804	10998945	3194544	2236807
Mar	1398.5	27	240.9	9096264	8186637	133106	3593862	4592775	38000	202	68	27.1	4504254	4504	8098116	3593862	4504254
Apr	1761.4	25	240.9	10608032	9547228	133106	3327650	6219578	38000	74	68	27.1	1650073	1650	4977723	3327650	1650073
May	1852.3	27	240.9	12047915	10843123	133106	3593862	7249261	38000	7	68	27.1	156088	156	3749950	3593862	156088
Jun	1844.3	26	240.9	11551589	10396430	133106	3460756	6935674	38000	0	68	27.1	0	0	3460756	3460756	0
Jul	1783.5	26	240.9	11170774	10053697	133106	3460756	6592941	38000	0	68	27.1	0	0	3460756	3460756	0
Aug	1620.9	27	240.9	10542820	9488538	133106	3593862	5894676	38000	0	68	27.1	0	0	3593862	3593862	0
Sep	1363.7	25	240.9	8212883	7391595	133106	3327650	4063945	38000	2	68	27.1	44597	45	3372247	3327650	44597
Oct	1216.7	27	240.9	7913782	7122404	133106	3593862	3528542	38000	57	68	27.1	1271002	1271	4864864	3593862	1271002
Nov	941.1	26	240.9	5894486	5305037	133106	3460756	1844281	38000	211	68	27.1	4704939	4705	8165695	3460756	1844281
Dec	753.7	26	240.9	4720725	4248652	133106	3460756	787896	38000	416	68	27.1	9276088	9276	12736844	3460756	787896

SHW System Information					Price of Gas Replaced by Renewable Energy				Payback Length (years)
Number of Panels	Area per Panel (sf)	System Heat Loss Factor	Price per Unit ($/sf)	Install Cost	Total System Use (kBTU)	Energy Conversion (1 Therm = 100 kBTU)	Cost ($/therm)	Total Cost per Year	
6	**40.15**	**0.9**	**$72.00**	**$17,344.80**	**55043**	**0.01**	**$0.88**	**$485.04**	**36**

Total System Use (kBTU)	55043	
Building Conditioned Area (sf)	8172	
Annual Renewable Energy Production	**6.74**	**kBTU/sf**

CIC RA 5-9 Adapt-Build Prototype

Location	**Fort Stewart, GA**	
Building owner	**US Army Corp of Engineers**	
Program user	**JPB**	
Company	**Parsons Brinckerhoff**	
Comments	**TRACE 700 v6_2_7 - gbXML imported on Thursday, May 03, 2012 at 02:39 PM**	
By	**PB**	
Dataset name	**C:\DOCUMENTS AND SETTINGS\BOULEY\DESKTOP\TRACE DOCS\CIDC\RA 5-9\120416\5-9_120817.TRC**	
Calculation time	**08:27 AM on 08/20/2012**	
TRACE® 700 version	**6.2.7**	
Location	**Hunter AAF, GA**	
Latitude	**32.0**	**deg**
Longitude	**81.2**	**deg**
Time Zone	**5**	
Elevation	**0**	**ft**
Barometric pressure	**30.3**	**in. Hg**
Air density	**0.0770**	**lb/cu ft**
Air specific heat	**0.2444**	**Btu/lb·°F**
Density-specific heat product	**1.1299**	**Btu/h·cfm·°F**
Latent heat factor	**4,973.7**	**Btu·min/h·cu ft**
Enthalpy factor	**4.6224**	**lb·min/hr·cu ft**
Summer design dry bulb	**93**	**°F**
Summer design wet bulb	**78**	**°F**
Winter design dry bulb	**29**	**°F**
Summer clearness number	**1.00**	
Winter clearness number	**1.00**	
Summer ground reflectance	**0.20**	
Winter ground reflectance	**0.20**	
Carbon Dioxide Level	**400**	**ppm**
Design simulation period	**January - December**	
Cooling load methodology	**TETD-TA1**	
Heating load methodology	**UATD**	

System Checksums

By PB

Default System — **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 5 / 9
Outside Air: OADB/WB/HR: 73 / 61 / 59

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	-8	-8	-4
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	136	68	204	107
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	-6		-6	-3
Sub Total ==>	130	60	189	100
Internal Loads				
Lights	0	0	0	0
People	0	0	0	0
Misc	0	0	0	0
Sub Total ==>	0	0	0	0
Ceiling Load	-31	31	0	0
Ventilation Load	0	0	0	0
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		1	1	0
Sup. Fan Heat			0	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	99	91	190	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	173	91
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	-3	-2
Sub Total ==>	170	89
Internal Loads		
Lights	0	0
People	0	0
Misc	0	0
Sub Total ==>	0	0
Ceiling Load	21	11
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	191	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-55	3.28
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-1,271	-1,613	96.59
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-11	-11	0.66
Sub Total ==>	-1,282	-1,679	100.53
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-388	0	0.00
Ventilation Load	0	0	0.00
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		9	-0.53
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-1,670	-1,670	100.00

TEMPERATURES

	Cooling	Heating
SADB	80.0	55.0
Ra Plenum	78.3	33.6
Return	78.3	33.6
Ret/OA	78.3	33.6
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	0	0
Terminal	0	0
Main Fan	0	0
Sec Fan	0	0
Nom Vent	0	0
AHU Vent	0	0
Infil	0	0
MinStop/Rh	0	0
Return	0	0
Exhaust	0	0
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	0.0	0.0
cfm/ft²	0.00	0.00
cfm/ton	0.00	
ft²/ton	0.00	
Btu/hr·ft²	0.00	0.00
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.0	0.0	0.0	0	0.0	0.0	56.8	0.0	0.0	56.8
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	57		
Part	5,742		
Int Door	0		
ExFlr	0		
Roof	57	0	0
Wall	384	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	0.0	0	0.0	0.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	33.6	79.7
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	0.0			

System Checksums

By PB

System - 002 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 14
Outside Air: OADB/WB/HR: 93 / 77 / 113

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,813	1,813	8
Glass Solar	895	0	895	4
Glass/Door Cond	274	0	274	1
Wall Cond	1,191	716	1,907	8
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	225		225	1
Sub Total ==>	2,586	2,528	5,114	22
Internal Loads				
Lights	1,732	433	2,165	9
People	1,800	0	1,800	8
Misc	1,534	0	1,534	7
Sub Total ==>	5,066	433	5,499	24
Ceiling Load	802	-802	0	0
Ventilation Load	0	0	13,029	56
Adj Air Trans Heat	188		188	1
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-1,073	-1,073	-5
Sup. Fan Heat			180	1
Ret. Fan Heat		133	133	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	8,642	1,219	23,070	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	2,169	24
Glass/Door Cond	154	2
Wall Cond	1,428	16
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	53	1
Sub Total ==>	3,804	43
Internal Loads		
Lights	1,732	19
People	1,000	11
Misc	1,534	17
Sub Total ==>	4,266	48
Ceiling Load	651	7
Ventilation Load	0	0
Adj Air Trans Heat	188	2
Ov/Undr Sizing		
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
***Grand Total* ==>**	8,910	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,112	6.09
Glass Solar	0	0	0.00
Glass/Door Cond	-742	-742	4.06
Wall Cond	-1,094	-1,772	9.71
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-181	-181	0.99
Sub Total ==>	-2,017	-3,807	20.86
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-482	0	0.00
Ventilation Load	0	-6,004	32.89
Adj Air Trans Heat	-331	-331	2
Ov/Undr Sizing	-4,259	-4,259	23.33
Exhaust Heat		352	-1.93
OA Preheat Diff.		-2,859	15.66
RA Preheat Diff.		-1,345	7.37
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-7,089	-18,253	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	85.0
Ra Plenum	79.2	67.5
Return	79.5	67.5
Ret/OA	86.0	56.7
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	461	461
Terminal	461	461
Main Fan	461	461
Sec Fan	0	0
Nom Vent	224	128
AHU Vent	224	128
Infil	4	4
MinStop/Rh	0	0
Return	450	456
Exhaust	212	123
Rm Exh	49	29
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	48.4	27.8
cfm/ft²	0.77	0.77
cfm/ton	208.69	
ft²/ton	271.11	
Btu/hr·ft²	44.26	-31.63
No. People	4	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	2.2	26.5	15.7	461	86.0	70.5	86.0	55.0	52.7	54.9
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2.2	26.5								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	599		
Part	3,456		
Int Door	0		
ExFlr	0		
Roof	599	0	0
Wall	392	40	10
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-19.0	461	48.6	85.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-4.2	461	48.6	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-19.0			

System Checksums

By PB

System - 003 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	971	971	8
Glass Solar	733	0	733	6
Glass/Door Cond	443	0	443	3
Wall Cond	1,094	638	1,732	14
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	122		122	1
Sub Total ==>	2,392	1,609	4,002	31
Internal Loads				
Lights	932	233	1,165	9
People	450	0	450	4
Misc	794	0	794	6
Sub Total ==>	2,177	233	2,410	19
Ceiling Load	443	-443	0	0
Ventilation Load	0	0	6,810	53
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-612	-612	-5
Sup. Fan Heat			107	1
Ret. Fan Heat		81	81	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	5,012	868	12,797	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	1,325	25
Glass/Door Cond	299	6
Wall Cond	1,228	23
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	32	1
Sub Total ==>	2,884	55
Internal Loads		
Lights	932	18
People	250	5
Misc	794	15
Sub Total ==>	1,977	38
Ceiling Load	405	8
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	5,266	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-561	6.36
Glass Solar	0	0	0.00
Glass/Door Cond	-1,113	-1,113	12.61
Wall Cond	-1,405	-2,277	25.79
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-94	-94	1.06
Sub Total ==>	-2,612	-4,045	45.82
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-345	0	0.00
Ventilation Load	0	-2,998	33.96
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		261	-2.96
OA Preheat Diff.		-1,428	16.17
RA Preheat Diff.		-619	7.01
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-2,957	-8,829	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	82.0
Ra Plenum	79.5	66.5
Return	79.8	66.5
Ret/OA	85.3	57.6
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	273	273
Terminal	273	273
Main Fan	273	273
Sec Fan	0	0
Nom Vent	112	64
AHU Vent	112	64
Infil	2	2
MinStop/Rh	0	0
Return	275	275
Exhaust	114	66
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	40.9	23.4
cfm/ft²	0.88	0.88
cfm/ton	222.36	
ft²/ton	253.06	
Btu/hr·ft²	47.42	-30.83
No. People	1	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	1.2	14.7	9.2	273	85.3	69.6	81.8	55.0	52.6	54.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.2	14.7								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	310		
Part	1,236		
Int Door	0		
ExFlr	0		
Roof	310	0	0
Wall	517	60	12
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-9.6	273	50.9	82.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-1.6	273	50.9	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-9.6			

System Checksums

By PB

System - 004 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	2,199	2,199	8
Glass Solar	1,084	0	1,084	4
Glass/Door Cond	682	0	682	2
Wall Cond	1,351	779	2,130	8
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	284		284	1
Sub Total ==>	3,402	2,977	6,379	23
Internal Loads				
Lights	2,272	568	2,840	10
People	2,250	0	2,250	8
Misc	1,937	0	1,937	7
Sub Total ==>	6,459	568	7,027	25
Ceiling Load	1,037	-1,037	0	0
Ventilation Load	0	0	15,917	56
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-1,441	-1,441	-5
Sup. Fan Heat			199	1
Ret. Fan Heat		152	152	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	10,897	1,219	28,232	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	1,085	11
Glass/Door Cond	713	7
Wall Cond	1,411	14
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	99	1
Sub Total ==>	3,307	34
Internal Loads		
Lights	2,272	23
People	1,250	13
Misc	1,937	20
Sub Total ==>	5,459	56
Ceiling Load	1,048	11
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	9,814	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,375	7.35
Glass Solar	0	0	0.00
Glass/Door Cond	-1,855	-1,855	9.92
Wall Cond	-2,131	-3,484	18.63
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-229	-229	1.22
Sub Total ==>	-4,215	-6,943	37.12
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-798	0	0.00
Ventilation Load	0	-7,335	39.21
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	-3	-3	0.02
Exhaust Heat		607	-3.24
OA Preheat Diff.		-3,493	18.67
RA Preheat Diff.		-1,538	8.22
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-5,016	-18,706	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	80.9
Ra Plenum	79.3	66.7
Return	79.6	66.7
Ret/OA	87.0	54.9
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	508	508
Terminal	508	508
Main Fan	508	508
Sec Fan	0	0
Nom Vent	273	156
AHU Vent	273	156
Infil	5	5
MinStop/Rh	0	0
Return	513	513
Exhaust	278	161
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	53.7	30.8
cfm/ft²	0.67	0.67
cfm/ton	187.84	
ft²/ton	279.62	
Btu/hr·ft²	42.92	-26.38
No. People	5	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	2.7	32.5	19.3	508	87.0	71.7	90.9	55.0	52.1	52.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2.7	32.5								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	757		
Part	6,245		
Int Door	0		
ExFlr	0		
Roof	757	0	0
Wall	799	100	13
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-20.0	508	46.2	80.9
Aux Htg	0.0	0	0.0	0.0
Preheat	-6.4	508	46.2	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-20.0			

System Checksums

By PB

System - 005 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,244	1,244	9
Glass Solar	185	0	185	1
Glass/Door Cond	516	0	516	4
Wall Cond	835	452	1,286	9
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	156		156	1
Sub Total ==>	1,692	1,695	3,388	23
Internal Loads				
Lights	1,641	410	2,051	14
People	0	0	0	0
Misc	1,025	0	1,025	7
Sub Total ==>	2,666	410	3,076	21
Ceiling Load	639	-639	0	0
Ventilation Load	0	0	8,682	60
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-878	-878	-6
Sup. Fan Heat			100	1
Ret. Fan Heat		76	76	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	4,998	664	14,443	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	178	4
Glass/Door Cond	526	11
Wall Cond	868	18
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	52	1
Sub Total ==>	1,624	33
Internal Loads		
Lights	1,641	33
People	0	0
Misc	1,025	21
Sub Total ==>	2,666	54
Ceiling Load	632	13
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
***Grand Total* ==>**	4,922	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-724	7.02
Glass Solar	0	0	0.00
Glass/Door Cond	-1,313	-1,313	12.72
Wall Cond	-1,242	-1,992	19.30
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-121	-121	1.17
Sub Total ==>	-2,676	-4,151	40.22
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-448	0	0.00
Ventilation Load	0	-3,869	37.49
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		339	-3.29
OA Preheat Diff.		-1,843	17.85
RA Preheat Diff.		-798	7.73
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-3,124	-10,321	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	83.6
Ra Plenum	80.0	66.5
Return	80.3	66.5
Ret/OA	87.7	54.2
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	255	255
Terminal	255	255
Main Fan	255	255
Sec Fan	0	0
Nom Vent	144	83
AHU Vent	144	83
Infil	3	3
MinStop/Rh	0	0
Return	258	258
Exhaust	147	85
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	56.5	32.4
cfm/ft²	0.64	0.64
cfm/ton	184.17	
ft²/ton	289.40	
Btu/hr·ft²	41.47	-27.72
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	1.4	16.6	10.0	255	87.7	71.9	91.1	55.0	51.9	52.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.4	16.6								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	401		
Part	1,779		
Int Door	0		
ExFlr	0		
Roof	401	0	0
Wall	400	0	0
Ext Door	45	45	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-11.1	255	45.0	83.6
Aux Htg	0.0	0	0.0	0.0
Preheat	-3.6	255	45.0	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-11.1			

System Checksums

By PB

System - 006 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	399	399	8
Glass Solar	94	0	94	2
Glass/Door Cond	251	0	251	5
Wall Cond	257	153	410	8
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	54		54	1
Sub Total ==>	655	552	1,206	24
Internal Loads				
Lights	565	141	706	14
People	0	0	0	0
Misc	353	0	353	7
Sub Total ==>	918	141	1,060	21
Ceiling Load	204	-204	0	0
Ventilation Load	0	0	2,994	59
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-282	-282	-6
Sup. Fan Heat			36	1
Ret. Fan Heat		27	27	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	1,778	234	5,042	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	94	5
Glass/Door Cond	262	15
Wall Cond	268	15
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	18	1
Sub Total ==>	642	36
Lights	565	32
People	0	0
Misc	353	20
Sub Total ==>	918	52
Ceiling Load	207	12
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	1,767	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-250	6.60
Glass Solar	0	0	0.00
Glass/Door Cond	-691	-691	18.27
Wall Cond	-405	-674	17.81
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-42	-42	1.10
Sub Total ==>	-1,138	-1,656	43.78
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-153	0	0.00
Ventilation Load	0	-1,333	35.23
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		116	-3.06
OA Preheat Diff.		-635	16.78
RA Preheat Diff.		-275	7.28
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-1,291	-3,783	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	85.6
Ra Plenum	79.7	66.5
Return	79.9	66.5
Ret/OA	87.2	54.7
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	92	92
Terminal	92	92
Main Fan	92	92
Sec Fan	0	0
Nom Vent	50	28
AHU Vent	50	28
Infil	1	1
MinStop/Rh	0	0
Return	92	92
Exhaust	51	29
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	54.2	31.1
cfm/ft²	0.66	0.66
cfm/ton	189.42	
ft²/ton	285.57	
Btu/hr·ft²	42.02	-29.76
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.5	5.8	3.5	92	87.2	71.6	89.8	55.0	52.1	52.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.5	5.8								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	138		
Part	1,207		
Int Door	0		
ExFlr	0		
Roof	138	0	0
Wall	135	0	0
Ext Door	24	24	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-4.1	92	45.9	85.6
Aux Htg	0.0	0	0.0	0.0
Preheat	-1.2	92	45.9	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-4.1			

System Checksums

By PB

System - 007 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	477	477	10
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	61		61	1
Sub Total ==>	61	477	538	11
Internal Loads				
Lights	650	162	812	17
People	0	0	0	0
Misc	406	0	406	8
Sub Total ==>	1,056	162	1,218	25
Ceiling Load	249	-249	0	0
Ventilation Load	0	0	3,387	70
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-342	-342	-7
Sup. Fan Heat			27	1
Ret. Fan Heat		21	21	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	1,366	69	4,848	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	21	2
Sub Total ==>	21	2
Internal Loads		
Lights	650	49
People	0	0
Misc	406	31
Sub Total ==>	1,056	80
Ceiling Load	249	19
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	1,326	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-296	10.32
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-48	-48	1.67
Sub Total ==>	-48	-344	12.00
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-115	0	0.00
Ventilation Load	0	-1,533	53.42
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		87	-3.05
OA Preheat Diff.		-730	25.44
RA Preheat Diff.		-350	12.20
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-163	-2,869	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	72.6
Ra Plenum	80.0	67.7
Return	80.2	67.7
Ret/OA	91.2	49.1
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	69	69
Terminal	69	69
Main Fan	69	69
Sec Fan	0	0
Nom Vent	57	33
AHU Vent	57	33
Infil	1	1
MinStop/Rh	0	0
Return	70	70
Exhaust	58	34
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	83.1	47.6
cfm/ft²	0.43	0.43
cfm/ton	147.84	
ft²/ton	341.50	
Btu/hr·ft²	35.14	-18.34
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.5	5.6	3.0	69	91.2	75.4	106.1	55.0	51.5	50.4
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.5	5.6								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	159		
Part	952		
Int Door	0		
ExFlr	0		
Roof	159	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-2.9	69	35.1	72.6
Aux Htg	0.0	0	0.0	0.0
Preheat	-1.9	69	35.1	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-2.9			

System Checksums

By PB

System - 008 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 16
Outside Air: OADB/WB/HR: 93 / 77 / 113

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,520	1,520	4
Glass Solar	4,272	0	4,272	12
Glass/Door Cond	1,409	0	1,409	4
Wall Cond	2,123	1,450	3,573	10
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	209		209	1
Sub Total ==>	8,013	2,970	10,983	32
Internal Loads				
Lights	1,281	320	1,601	5
People	0	0	0	0
Misc	1,501	0	1,501	4
Sub Total ==>	2,781	320	3,101	9
Ceiling Load	648	-648	0	0
Ventilation Load	0	0	21,911	63
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-1,764	-1,764	-5
Sup. Fan Heat			253	1
Ret. Fan Heat		193	193	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	11,442	1,070	34,677	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	5,383	43
Glass/Door Cond	1,309	10
Wall Cond	2,299	18
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	64	1
Sub Total ==>	9,055	73
Internal Loads		
Lights	1,281	10
People	0	0
Misc	1,501	12
Sub Total ==>	2,781	22
Ceiling Load	652	5
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	12,488	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,085	4.19
Glass Solar	0	0	0.00
Glass/Door Cond	-3,584	-3,584	13.84
Wall Cond	-1,909	-3,235	12.49
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-177	-177	0.68
Sub Total ==>	-5,671	-8,082	31.21
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-486	0	0.00
Ventilation Load	0	-10,772	41.60
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	-205	-205	0.79
Exhaust Heat		691	-2.67
OA Preheat Diff.		-5,130	19.81
RA Preheat Diff.		-2,397	9.26
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-6,363	-25,894	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	80.8
Ra Plenum	78.5	67.4
Return	78.9	67.4
Ret/OA	87.6	53.6
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	647	647
Terminal	647	647
Main Fan	647	647
Sec Fan	0	0
Nom Vent	401	230
AHU Vent	401	230
Infil	4	4
MinStop/Rh	0	0
Return	651	651
Exhaust	405	234
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	62.0	35.5
cfm/ft²	1.10	1.10
cfm/ton	194.61	
ft²/ton	176.41	
Btu/hr·ft²	68.02	-46.79
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	3.3	39.9	23.2	647	86.8	71.5	90.3	55.0	52.6	54.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	3.3	39.9								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	586		
Part	2,742		
Int Door	0		
ExFlr	0		
Roof	586	0	0
Wall	645	0	0
Ext Door	124	124	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-27.4	647	43.3	80.8
Aux Htg	0.0	0	0.0	0.0
Preheat	-10.7	647	43.3	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-27.4			

System Checksums

By PB

System - 009 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 16
Outside Air: OADB/WB/HR: 93 / 77 / 113

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	484	484	7
Glass Solar	515	0	515	8
Glass/Door Cond	143	0	143	2
Wall Cond	361	239	600	9
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	63		63	1
Sub Total ==>	1,081	723	1,804	27
Internal Loads				
Lights	496	124	620	9
People	450	0	450	7
Misc	423	0	423	6
Sub Total ==>	1,368	124	1,492	23
Ceiling Load	198	-198	0	0
Ventilation Load	0	0	3,487	53
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-277	-277	-4
Sup. Fan Heat			59	1
Ret. Fan Heat		45	45	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	2,648	416	6,611	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	909	31
Glass/Door Cond	125	4
Wall Cond	504	17
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	15	1
Sub Total ==>	1,552	53
Internal Loads		
Lights	496	17
People	250	9
Misc	423	15
Sub Total ==>	1,168	40
Ceiling Load	182	6
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	2,903	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-307	7.84
Glass Solar	0	0	0.00
Glass/Door Cond	-371	-371	9.47
Wall Cond	-339	-570	14.54
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-50	-50	1.27
Sub Total ==>	-759	-1,298	33.13
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-126	0	0.00
Ventilation Load	0	-1,595	40.71
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		96	-2.44
OA Preheat Diff.		-759	19.39
RA Preheat Diff.		-361	9.21
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-886	-3,917	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	76.5
Ra Plenum	78.8	67.6
Return	79.1	67.6
Ret/OA	84.5	58.8
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	150	150
Terminal	150	150
Main Fan	150	150
Sec Fan	0	0
Nom Vent	59	34
AHU Vent	59	34
Infil	1	1
MinStop/Rh	0	0
Return	151	151
Exhaust	60	35
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	39.5	22.6
cfm/ft²	0.91	0.91
cfm/ton	237.27	
ft²/ton	260.58	
Btu/hr·ft²	46.05	-25.07
No. People	1	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	0.6	7.6	4.7	150	84.5	69.1	80.5	55.0	53.2	56.6
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.6	7.6								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	165		
Part	1,438		
Int Door	0		
ExFlr	0		
Roof	165	0	0
Wall	133	20	15
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-4.1	150	52.2	76.5
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.6	150	52.2	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-4.1			

System Checksums

By PB

System - 010 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,327	1,327	10
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	1,256	602	1,858	13
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	163		163	1
Sub Total ==>	1,419	1,930	3,349	24
Internal Loads				
Lights	925	231	1,156	8
People	0	0	0	0
Misc	1,084	0	1,084	8
Sub Total ==>	2,009	231	2,240	16
Ceiling Load	760	-760	0	0
Ventilation Load	0	0	9,108	66
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-1,039	-1,039	-8
Sup. Fan Heat			84	1
Ret. Fan Heat		65	65	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	4,189	426	13,807	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	1,354	32
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	55	1
Sub Total ==>	1,409	34
Internal Loads		
Lights	925	22
People	0	0
Misc	1,084	26
Sub Total ==>	2,009	48
Ceiling Load	751	18
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	4,170	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-763	8.22
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-1,257	-1,893	20.40
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-128	-128	1.38
Sub Total ==>	-1,385	-2,784	29.99
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-492	0	0.00
Ventilation Load	0	-4,090	44.07
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		373	-4.02
OA Preheat Diff.		-1,948	20.99
RA Preheat Diff.		-833	8.97
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-1,877	-9,282	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	79.6
Ra Plenum	80.7	66.3
Return	80.9	66.3
Ret/OA	89.7	51.1
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	216	216
Terminal	216	216
Main Fan	216	216
Sec Fan	0	0
Nom Vent	152	87
AHU Vent	152	87
Infil	3	3
MinStop/Rh	0	0
Return	219	219
Exhaust	155	90
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	70.5	40.4
cfm/ft²	0.51	0.51
cfm/ton	163.18	
ft²/ton	320.02	
Btu/hr·ft²	37.50	-23.03
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	1.3	15.9	8.9	216	89.7	73.9	99.1	55.0	51.8	51.6
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.3	15.9								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	423		
Part	909		
Int Door	0		
ExFlr	0		
Roof	423	0	0
Wall	379	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-9.8	216	39.7	79.6
Aux Htg	0.0	0	0.0	0.0
Preheat	-4.7	216	39.7	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-9.8			

System Checksums

By PB

System - 011 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	858	858	9
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	109		109	1
Sub Total ==>	109	858	966	10
Internal Loads				
Lights	666	167	833	9
People	450	0	450	5
Misc	759	0	759	8
Sub Total ==>	1,875	167	2,042	21
Ceiling Load	433	-433	0	0
Ventilation Load	0	0	7,318	76
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	5		5	0
Exhaust Heat		-813	-813	-8
Sup. Fan Heat			44	0
Ret. Fan Heat		39	39	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	2,422	-184	9,600	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	40	2
Sub Total ==>	40	2
Internal Loads		
Lights	666	31
People	250	12
Misc	759	35
Sub Total ==>	1,675	78
Ceiling Load	433	20
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	5	0
Grand Total ==>	2,153	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-551	9.71
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-90	-90	1.58
Sub Total ==>	-90	-641	11.29
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-233	0	0.00
Ventilation Load	0	-3,455	60.87
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	-126	-126	2.21
Exhaust Heat		212	-3.73
OA Preheat Diff.		-1,131	19.94
RA Preheat Diff.		-535	9.42
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-449	-5,675	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	74.2
Ra Plenum	79.6	67.5
Return	79.9	67.5
Ret/OA	93.4	41.7
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	111	111
Terminal	111	111
Main Fan	111	111
Sec Fan	0	0
Nom Vent	129	74
AHU Vent	129	74
Infil	2	2
MinStop/Rh	0	0
Return	131	113
Exhaust	148	76
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	100.0	66.1
cfm/ft²	0.38	0.38
cfm/ton	121.17	
ft²/ton	322.43	
Btu/hr·ft²	37.22	-21.96
No. People	1	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.9	11.0	5.4	111	93.4	77.5	115.3	55.0	48.1	38.4
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.9	11.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	297		
Part	2,693		
Int Door	0		
ExFlr	0		
Roof	297	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-6.5	111	22.5	74.2
Aux Htg	0.0	0	0.0	0.0
Preheat	-4.2	111	28.5	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-6.5			

System Checksums

By PB

System - 012 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	3,540	3,540	8
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	460		460	1
Sub Total ==>	460	3,540	4,000	9
Internal Loads				
Lights	2,644	661	3,305	7
People	4,500	0	4,500	10
Misc	3,301	0	3,301	7
Sub Total ==>	10,445	661	11,106	24
Ceiling Load	1,749	-1,749	0	0
Ventilation Load	0	0	34,065	73
Adj Air Trans Heat	191		191	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	28		28	0
Exhaust Heat		-2,949	-2,949	-6
Sup. Fan Heat			215	0
Ret. Fan Heat		150	150	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	12,873	-347	46,805	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	168	2
Sub Total ==>	168	2
Internal Loads		
Lights	2,644	25
People	2,500	24
Misc	3,301	31
Sub Total ==>	8,445	80
Ceiling Load	1,770	17
Ventilation Load	0	0
Adj Air Trans Heat	191	2
Ov/Undr Sizing	28	0
Grand Total ==>	10,603	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-2,400	6.37
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-390	-390	1.04
Sub Total ==>	-390	-2,790	7.41
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-988	0	0.00
Ventilation Load	0	-16,558	43.98
Adj Air Trans Heat	-518	-518	1
Ov/Undr Sizing	-10,012	-10,012	26.60
Exhaust Heat		878	-2.33
OA Preheat Diff.		-5,862	15.57
RA Preheat Diff.		-2,783	7.39
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-11,908	-37,645	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	90.0
Ra Plenum	79.3	67.6
Return	79.5	67.6
Ret/OA	93.4	42.4
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	549	549
Terminal	549	549
Main Fan	549	549
Sec Fan	0	0
Nom Vent	616	353
AHU Vent	616	353
Infil	8	8
MinStop/Rh	0	0
Return	507	517
Exhaust	575	321
Rm Exh	50	40
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	100.0	64.3
cfm/ft²	0.43	0.43
cfm/ton	122.38	
ft²/ton	287.53	
Btu/hr·ft²	41.73	-31.87
No. People	10	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	4.5	53.8	26.8	549	93.4	77.5	115.3	55.0	48.5	39.7
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	4.5	53.8								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	1,290		
Part	14,789		
Int Door	0		
ExFlr	0		
Roof	1,290	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-41.1	549	23.7	90.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-20.5	549	28.5	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-41.1			

System Checksums

By PB

System - 013 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,429	1,429	6
Glass Solar	1,036	0	1,036	4
Glass/Door Cond	236	0	236	1
Wall Cond	1,636	901	2,536	10
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	226		226	1
Sub Total ==>	3,133	2,330	5,463	22
Internal Loads				
Lights	1,588	397	1,984	8
People	2,250	0	2,250	9
Misc	1,469	0	1,469	6
Sub Total ==>	5,307	397	5,704	23
Ceiling Load	691	-691	0	0
Ventilation Load	0	0	14,694	59
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-1,093	-1,093	-4
Sup. Fan Heat			184	1
Ret. Fan Heat		141	141	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	9,131	1,083	25,092	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	2,185	24
Glass/Door Cond	43	0
Wall Cond	1,930	21
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	36	0
Sub Total ==>	4,193	46
Internal Loads		
Lights	1,588	17
People	1,250	14
Misc	1,469	16
Sub Total ==>	4,307	47
Ceiling Load	592	7
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	9,092	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,053	6.43
Glass Solar	0	0	0.00
Glass/Door Cond	-742	-742	4.53
Wall Cond	-1,893	-2,976	18.18
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-174	-174	1.06
Sub Total ==>	-2,809	-4,944	30.21
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-541	0	0.00
Ventilation Load	0	-6,464	39.50
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	-958	-958	5.85
Exhaust Heat		476	-2.91
OA Preheat Diff.		-3,078	18.81
RA Preheat Diff.		-1,397	8.54
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-4,307	-16,366	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	79.7
Ra Plenum	78.8	67.0
Return	79.0	67.0
Ret/OA	86.3	55.8
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	471	471
Terminal	471	471
Main Fan	471	471
Sec Fan	0	0
Nom Vent	241	138
AHU Vent	241	138
Infil	4	4
MinStop/Rh	0	0
Return	475	475
Exhaust	244	142
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	51.1	29.3
cfm/ft²	0.82	0.82
cfm/ton	195.80	
ft²/ton	238.67	
Btu/hr·ft²	50.28	-29.97
No. People	5	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	2.4	28.9	15.8	471	85.3	70.9	89.0	55.0	51.8	51.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2.4	28.9								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	574		
Part	4,902		
Int Door	0		
ExFlr	0		
Roof	574	0	0
Wall	634	40	6
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-17.2	471	47.3	79.7
Aux Htg	0.0	0	0.0	0.0
Preheat	-5.1	471	47.3	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-17.2			

System Checksums

By PB

System - 014 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 8 / 15
Outside Air: OADB/WB/HR: 90 / 77 / 120

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	934	934	4
Glass Solar	1,629	0	1,629	8
Glass/Door Cond	366	0	366	2
Wall Cond	1,122	719	1,841	9
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	162		162	1
Sub Total ==>	3,279	1,653	4,931	23
Internal Loads				
Lights	1,272	318	1,590	8
People	4,050	0	4,050	19
Misc	1,084	0	1,084	5
Sub Total ==>	6,406	318	6,724	32
Ceiling Load	375	-375	0	0
Ventilation Load	0	0	9,717	46
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-575	-575	-3
Sup. Fan Heat			196	1
Ret. Fan Heat		149	149	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	10,060	1,170	21,144	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	3,351	35
Glass/Door Cond	80	1
Wall Cond	1,309	14
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	17	0
Sub Total ==>	4,756	49
Internal Loads		
Lights	1,272	13
People	2,250	23
Misc	1,084	11
Sub Total ==>	4,606	48
Ceiling Load	327	3
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	9,689	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-791	6.48
Glass Solar	0	0	0.00
Glass/Door Cond	-1,113	-1,113	9.13
Wall Cond	-1,261	-2,086	17.10
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-128	-128	1.05
Sub Total ==>	-2,502	-4,117	33.77
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-308	0	0.00
Ventilation Load	0	-4,392	36.02
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	-840	-840	6.89
Exhaust Heat		250	-2.05
OA Preheat Diff.		-2,091	17.15
RA Preheat Diff.		-1,003	8.22
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-3,650	-12,193	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	77.7
Ra Plenum	77.8	67.7
Return	78.1	67.7
Ret/OA	82.1	60.4
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	502	502
Terminal	502	502
Main Fan	502	502
Sec Fan	0	0
Nom Vent	164	94
AHU Vent	164	94
Infil	3	3
MinStop/Rh	0	0
Return	505	505
Exhaust	166	96
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	32.6	18.7
cfm/ft²	1.18	1.18
cfm/ton	247.64	
ft²/ton	209.00	
Btu/hr·ft²	57.42	-30.45
No. People	9	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	2.0	24.3	14.2	502	82.1	68.2	79.9	55.0	52.8	55.1
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2.0	24.3								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	423		
Part	2,849		
Int Door	0		
ExFlr	0		
Roof	423	0	0
Wall	474	60	13
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-12.9	502	54.9	77.7
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.1	502	54.9	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-12.9			

System Checksums

By PB

System - 015 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,121	1,121	10
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	157		157	1
Sub Total ==>	157	1,121	1,279	11
Internal Loads				
Lights	694	174	868	7
People	0	0	0	0
Misc	1,065	0	1,065	9
Sub Total ==>	1,760	174	1,933	17
Ceiling Load	728	-728	0	0
Ventilation Load	0	0	9,080	78
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-742	-742	-6
Sup. Fan Heat			52	0
Ret. Fan Heat		27	27	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	2,645	-148	11,629	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	54	2
Sub Total ==>	54	2
Internal Loads		
Lights	694	27
People	0	0
Misc	1,065	42
Sub Total ==>	1,760	69
Ceiling Load	737	29
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	2,551	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-763	11.30
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-126	-126	1.86
Sub Total ==>	-126	-889	13.17
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-395	0	0.00
Ventilation Load	0	-4,161	61.64
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	-34	-34	0.50
Exhaust Heat		222	-3.28
OA Preheat Diff.		-1,299	19.25
RA Preheat Diff.		-589	8.72
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-554	-6,750	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	74.6
Ra Plenum	80.5	67.0
Return	80.8	67.0
Ret/OA	93.4	41.2
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	132	132
Terminal	132	132
Main Fan	132	132
Sec Fan	0	0
Nom Vent	155	89
AHU Vent	155	89
Infil	3	3
MinStop/Rh	0	0
Return	91	109
Exhaust	113	66
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	100.0	67.2
cfm/ft²	0.32	0.32
cfm/ton	118.55	
ft²/ton	373.43	
Btu/hr·ft²	32.13	-18.91
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	1.1	13.4	6.5	132	93.4	77.5	115.3	55.0	47.2	35.3
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.1	13.4								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	416		
Part	5,001		
Int Door	0		
ExFlr	0		
Roof	416	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-7.9	132	21.9	74.6
Aux Htg	0.0	0	0.0	0.0
Preheat	-4.9	132	28.5	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-7.9			

System Checksums

By PB

System - 016 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	2,723	2,723	7
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	311		311	1
Sub Total ==>	311	2,723	3,034	8
Internal Loads				
Lights	2,138	534	2,672	7
People	5,400	0	5,400	15
Misc	2,300	0	2,300	6
Sub Total ==>	9,837	534	10,372	28
Ceiling Load	1,157	-1,157	0	0
Ventilation Load	0	0	26,005	70
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	5		5	0
Exhaust Heat		-2,560	-2,560	-7
Sup. Fan Heat			177	0
Ret. Fan Heat		145	145	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	11,311	-314	37,178	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	120	1
Sub Total ==>	120	1
Internal Loads		
Lights	2,138	25
People	3,000	34
Misc	2,300	26
Sub Total ==>	7,437	85
Ceiling Load	1,157	13
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	5	0
***Grand Total* ==>**	8,720	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,685	7.35
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-272	-272	1.18
Sub Total ==>	-272	-1,957	8.53
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-599	0	0.00
Ventilation Load	0	-13,018	56.77
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	-885	-885	3.86
Exhaust Heat		673	-2.94
OA Preheat Diff.		-5,208	22.71
RA Preheat Diff.		-2,535	11.05
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-1,755	-22,928	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	73.9
Ra Plenum	79.1	67.9
Return	79.3	67.9
Ret/OA	93.4	43.7
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	452	452
Terminal	452	452
Main Fan	452	452
Sec Fan	0	0
Nom Vent	485	278
AHU Vent	485	278
Infil	6	6
MinStop/Rh	0	0
Return	490	457
Exhaust	524	283
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	100.0	61.5
cfm/ft²	0.50	0.50
cfm/ton	126.74	
ft²/ton	252.14	
Btu/hr·ft²	47.59	-27.41
No. People	12	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	3.6	42.8	21.5	452	93.4	77.5	115.3	55.0	49.9	44.4
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	3.6	42.8								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	898		
Part	6,751		
Int Door	0		
ExFlr	0		
Roof	898	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-24.6	452	25.6	73.9
Aux Htg	0.0	0	0.0	0.0
Preheat	-16.9	452	28.5	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-24.6			

System Checksums

By PB

System - 017 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,280	1,280	7
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	919	441	1,360	8
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	174		174	1
Sub Total ==>	1,093	1,721	2,814	16
Internal Loads				
Lights	983	246	1,229	7
People	428	0	428	2
Misc	1,184	0	1,184	7
Sub Total ==>	2,595	246	2,841	16
Ceiling Load	738	-738	0	0
Ventilation Load	0	0	13,255	75
Adj Air Trans Heat	61		61	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-1,336	-1,336	-8
Sup. Fan Heat			86	0
Ret. Fan Heat		64	64	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	4,487	-43	17,785	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	1,093	26
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	47	1
Sub Total ==>	1,140	27
Internal Loads		
Lights	983	23
People	238	6
Misc	1,184	28
Sub Total ==>	2,405	57
Ceiling Load	650	15
Ventilation Load	0	0
Adj Air Trans Heat	61	1
Ov/Undr Sizing	0	0
Grand Total ==>	4,256	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-838	6.65
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-1,037	-1,565	12.42
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-140	-140	1.11
Sub Total ==>	-1,177	-2,543	20.18
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-508	0	0.00
Ventilation Load	0	-6,114	48.53
Adj Air Trans Heat	-107	-107	1
Ov/Undr Sizing	-472	-472	3.75
Exhaust Heat		505	-4.01
OA Preheat Diff.		-2,696	21.39
RA Preheat Diff.		-1,173	9.31
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-2,264	-12,600	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	80.9
Ra Plenum	80.0	66.5
Return	80.3	66.5
Ret/OA	93.4	44.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	220	220
Terminal	220	220
Main Fan	220	220
Sec Fan	0	0
Nom Vent	228	130
AHU Vent	228	130
Infil	3	3
MinStop/Rh	0	0
Return	216	219
Exhaust	223	129
Rm Exh	18	11
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	100.0	59.2
cfm/ft²	0.48	0.48
cfm/ton	129.32	
ft²/ton	271.46	
Btu/hr·ft²	44.20	-28.87
No. People	1	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	1.7	20.5	10.3	220	93.4	77.5	115.3	55.0	50.6	47.1
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.7	20.5								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	463		
Part	4,759		
Int Door	0		
ExFlr	0		
Roof	463	0	0
Wall	313	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-13.4	220	27.3	80.9
Aux Htg	0.0	0	0.0	0.0
Preheat	-8.3	220	28.5	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-13.4			

System Checksums

By PB

System - 018 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	716	716	7
Glass Solar	353	0	353	3
Glass/Door Cond	142	0	142	1
Wall Cond	1,057	574	1,631	15
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	88		88	1
Sub Total ==>	1,640	1,290	2,930	27
Internal Loads				
Lights	837	209	1,046	10
People	1,800	0	1,800	16
Misc	603	0	603	5
Sub Total ==>	3,240	209	3,449	31
Ceiling Load	323	-323	0	0
Ventilation Load	0	0	4,899	45
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-447	-447	-4
Sup. Fan Heat			94	1
Ret. Fan Heat		71	71	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	5,203	800	10,996	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	889	19
Glass/Door Cond	93	2
Wall Cond	924	20
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	21	0
Sub Total ==>	1,927	42
Internal Loads		
Lights	837	18
People	1,000	22
Misc	603	13
Sub Total ==>	2,440	53
Ceiling Load	252	5
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
***Grand Total* ==>**	4,619	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-432	6.91
Glass Solar	0	0	0.00
Glass/Door Cond	-371	-371	5.93
Wall Cond	-1,086	-1,698	27.16
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-71	-71	1.14
Sub Total ==>	-1,528	-2,572	41.14
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-225	0	0.00
Ventilation Load	0	-2,277	36.41
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		170	-2.73
OA Preheat Diff.		-1,084	17.34
RA Preheat Diff.		-490	7.84
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-1,753	-6,253	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	78.1
Ra Plenum	79.3	67.0
Return	79.6	67.0
Ret/OA	84.5	59.2
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	239	239
Terminal	239	239
Main Fan	239	239
Sec Fan	0	0
Nom Vent	85	49
AHU Vent	85	49
Infil	2	2
MinStop/Rh	0	0
Return	241	241
Exhaust	86	50
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	35.4	20.3
cfm/ft²	1.01	1.01
cfm/ton	226.98	
ft²/ton	223.65	
Btu/hr·ft²	53.66	-28.39
No. People	4	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	1.1	12.7	8.1	239	84.5	69.3	81.6	55.0	52.6	54.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.1	12.7								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	236		
Part	1,288		
Int Door	0		
ExFlr	0		
Roof	236	0	0
Wall	359	20	6
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-6.7	239	53.4	78.1
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.6	239	53.4	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-6.7			

System Checksums

By PB

System - 019 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	200	200	8
Glass Solar	84	0	84	3
Glass/Door Cond	200	0	200	8
Wall Cond	145	96	241	9
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	30		30	1
Sub Total ==>	459	296	755	29
Internal Loads				
Lights	106	26	132	5
People	0	0	0	0
Misc	198	0	198	7
Sub Total ==>	303	26	330	12
Ceiling Load	104	-104	0	0
Ventilation Load	0	0	1,675	63
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-144	-144	-5
Sup. Fan Heat			18	1
Ret. Fan Heat		14	14	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	866	88	2,647	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	79	9
Glass/Door Cond	218	25
Wall Cond	157	18
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	9	1
Sub Total ==>	463	53
Internal Loads		
Lights	106	12
People	0	0
Misc	198	23
Sub Total ==>	303	35
Ceiling Load	106	12
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
***Grand Total* ==>**	872	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-138	5.83
Glass Solar	0	0	0.00
Glass/Door Cond	-608	-608	25.76
Wall Cond	-243	-419	17.75
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-23	-23	0.99
Sub Total ==>	-874	-1,187	50.33
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-101	0	0.00
Ventilation Load	0	-747	31.65
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		76	-3.24
OA Preheat Diff.		-356	15.07
RA Preheat Diff.		-146	6.19
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-975	-2,359	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	93.9
Ra Plenum	79.2	65.9
Return	79.5	65.9
Ret/OA	88.1	52.7
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	45	45
Terminal	45	45
Main Fan	45	45
Sec Fan	0	0
Nom Vent	28	16
AHU Vent	28	16
Infil	1	1
MinStop/Rh	0	0
Return	46	46
Exhaust	28	16
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	61.5	35.2
cfm/ft²	0.58	0.58
cfm/ton	178.05	
ft²/ton	304.63	
Btu/hr·ft²	39.39	-33.68
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.3	3.0	1.8	45	88.1	72.5	93.9	55.0	52.0	52.3
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.3	3.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	77		
Part	979		
Int Door	0		
ExFlr	0		
Roof	77	0	0
Wall	85	0	0
Ext Door	21	21	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-2.6	45	42.9	93.9
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.8	45	42.9	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-2.6			

System Checksums

By PB

System - 020 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 17
Outside Air: OADB/WB/HR: 92 / 76 / 109

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	174	174	6
Glass Solar	402	0	402	14
Glass/Door Cond	218	0	218	8
Wall Cond	232	186	418	15
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	24		24	1
Sub Total ==>	876	360	1,236	44
Internal Loads				
Lights	92	23	115	4
People	0	0	0	0
Misc	172	0	172	6
Sub Total ==>	264	23	287	10
Ceiling Load	79	-79	0	0
Ventilation Load	0	0	1,357	48
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-110	-110	-4
Sup. Fan Heat			28	1
Ret. Fan Heat		22	22	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	1,219	216	2,820	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	588	42
Glass/Door Cond	199	14
Wall Cond	263	19
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	6	0
Sub Total ==>	1,057	76
Internal Loads		
Lights	92	7
People	0	0
Misc	172	12
Sub Total ==>	264	19
Ceiling Load	76	5
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	1,396	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-124	5.75
Glass Solar	0	0	0.00
Glass/Door Cond	-608	-608	28.14
Wall Cond	-193	-350	16.19
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-20	-20	0.94
Sub Total ==>	-821	-1,102	51.01
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-58	0	0.00
Ventilation Load	0	-649	30.06
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		44	-2.03
OA Preheat Diff.		-309	14.32
RA Preheat Diff.		-143	6.64
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-879	-2,160	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	83.4
Ra Plenum	78.7	67.3
Return	79.0	67.3
Ret/OA	83.2	59.9
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	72	72
Terminal	72	72
Main Fan	72	72
Sec Fan	0	0
Nom Vent	24	14
AHU Vent	24	14
Infil	0	0
MinStop/Rh	0	0
Return	73	73
Exhaust	25	14
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	33.4	19.1
cfm/ft²	1.08	1.08
cfm/ton	267.59	
ft²/ton	248.72	
Btu/hr·ft²	48.25	-35.40
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	0.3	3.2	2.2	72	83.2	67.4	74.0	55.0	53.0	56.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.3	3.2								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	67		
Part	948		
Int Door	0		
ExFlr	0		
Roof	67	0	0
Wall	70	0	0
Ext Door	21	21	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-2.4	72	54.3	83.4
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.1	72	54.3	55.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-2.4			

System Checksums

By PB

System - 021 **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 12
Outside Air: OADB/WB/HR: 89 / 74 / 101

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	195	195	3
Glass Solar	2,221	0	2,221	40
Glass/Door Cond	587	0	587	11
Wall Cond	336	360	696	12
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	26		26	0
Sub Total ==>	3,170	555	3,725	67
Internal Loads				
Lights	112	28	140	3
People	0	0	0	0
Misc	210	0	210	4
Sub Total ==>	322	28	350	6
Ceiling Load	62	-62	0	0
Ventilation Load	0	0	1,466	26
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-90	-90	-2
Sup. Fan Heat			75	1
Ret. Fan Heat		57	57	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	3,554	488	5,584	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	2,598	70
Glass/Door Cond	454	12
Wall Cond	288	8
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	7	0
Sub Total ==>	3,347	90
Internal Loads		
Lights	112	3
People	0	0
Misc	210	6
Sub Total ==>	322	9
Ceiling Load	52	1
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	3,720	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-152	3.32
Glass Solar	0	0	0.00
Glass/Door Cond	-2,208	-2,208	48.21
Wall Cond	-431	-899	19.63
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-25	-25	0.54
Sub Total ==>	-2,663	-3,284	71.70
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-66	0	0.00
Ventilation Load	0	-792	17.29
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		50	-1.09
OA Preheat Diff.		-377	8.23
RA Preheat Diff.		-177	3.87
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-2,729	-4,580	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.4	85.7
Ra Plenum	77.4	67.5
Return	77.7	67.5
Ret/OA	79.4	64.1
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	193	193
Terminal	193	193
Main Fan	193	193
Sec Fan	0	0
Nom Vent	29	17
AHU Vent	29	17
Infil	1	1
MinStop/Rh	0	0
Return	193	193
Exhaust	30	17
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	15.3	8.8
cfm/ft²	2.35	2.35
cfm/ton	359.99	
ft²/ton	153.15	
Btu/hr·ft²	78.36	-64.21
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.5	6.4	5.3	193	79.4	63.6	61.3	55.0	52.3	53.3
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.5	6.4								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	82		
Part	200		
Int Door	0		
ExFlr	0		
Roof	82	0	0
Wall	220	40	18
Ext Door	51	51	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-5.3	193	61.5	85.7
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-5.3			

System Checksums

By PB

CUHs - Vestibules **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	109	109	2
Glass Solar	2,269	0	2,269	51
Glass/Door Cond	843	0	843	19
Wall Cond	129	115	244	5
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	20		20	0
Sub Total ==>	3,260	224	3,484	78
Internal Loads				
Lights	295	74	369	8
People	0	0	0	0
Misc	580	0	580	13
Sub Total ==>	875	74	948	21
Ceiling Load	76	-76	0	0
Ventilation Load	0	0	0	0
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			22	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	4,210	221	4,454	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	2,269	54
Glass/Door Cond	843	20
Wall Cond	129	3
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	6	0
Sub Total ==>	3,246	77
Internal Loads		
Lights	295	7
People	0	0
Misc	580	14
Sub Total ==>	875	21
Ceiling Load	76	2
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	4,196	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-144	4.48
Glass Solar	0	0	0.00
Glass/Door Cond	-2,652	-2,652	82.73
Wall Cond	-207	-396	12.34
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-15	-15	0.47
Sub Total ==>	-2,874	-3,207	100.01
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-85	0	0.00
Ventilation Load	0	0	0.00
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	-0.01
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-2,959	-3,206	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	84.1
Ra Plenum	76.1	68.8
Return	76.0	68.8
Ret/OA	76.0	68.8
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	186	186
Terminal	186	186
Main Fan	186	186
Sec Fan	0	0
Nom Vent	0	0
AHU Vent	0	0
Infil	0	0
MinStop/Rh	0	0
Return	186	186
Exhaust	0	0
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	0.0	0.0
cfm/ft²	0.82	0.82
cfm/ton	500.36	
ft²/ton	610.12	
Btu/hr·ft²	19.67	-14.16
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	0.4	4.5	4.4	186	76.0	58.0	42.3	54.9	49.1	41.9
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.4	4.5								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	226		
Part	2,127		
Int Door	0		
ExFlr	0		
Roof	226	0	0
Wall	375	30	8
Ext Door	93	93	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-3.2	186	68.8	84.1
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-3.2			

System Checksums

By PB

DUMMY **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 5 / 1
Outside Air: OADB/WB/HR: 70 / 58 / 53

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	24	24	14
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	106	45	151	87
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	-2		-2	-1
Sub Total ==>	104	69	173	100
Internal Loads				
Lights	0	0	0	0
People	0	0	0	0
Misc	0	0	0	0
Sub Total ==>	0	0	0	0
Ceiling Load	40	-40	0	0
Ventilation Load	0	0	0	0
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			0	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	144	29	173	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	106	61
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	-1	-1
Sub Total ==>	105	61
Internal Loads		
Lights	0	0
People	0	0
Misc	0	0
Sub Total ==>	0	0
Ceiling Load	68	39
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
***Grand Total* ==>**	173	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-30	6.67
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-287	-413	92.96
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-2	-2	0.55
Sub Total ==>	-289	-445	100.18
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-155	0	0.00
Ventilation Load	0	0	0.00
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		1	-0.18
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-445	-445	100.00

TEMPERATURES

	Cooling	Heating
SADB	80.0	55.0
Ra Plenum	82.2	46.4
Return	82.2	46.4
Ret/OA	82.2	46.4
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	0	0
Terminal	0	0
Main Fan	0	0
Sec Fan	0	0
Nom Vent	0	0
AHU Vent	0	0
Infil	0	0
MinStop/Rh	0	0
Return	0	0
Exhaust	0	0
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	0.0	0.0
cfm/ft²	0.00	0.00
cfm/ton	0.00	
ft²/ton	0.00	
Btu/hr·ft²	0.00	0.00
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.0	0.0	0.0	0	0.0	0.0	75.3	0.0	0.0	75.3
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	57		
Part	5,742		
Int Door	0		
ExFlr	0		
Roof	57	0	0
Wall	384	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	0.0	0	0.0	0.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	46.4	80.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	0.0			

System Checksums

By PB

FCU - Elec — **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	66	66	0
Glass Solar	95	0	95	0
Glass/Door Cond	197	0	197	0
Wall Cond	38	27	65	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	7		7	0
Sub Total ==>	338	93	431	0
Internal Loads				
Lights	349	87	437	0
People	0	0	0	0
Misc	353	0	353	0
Sub Total ==>	703	87	790	0
Ceiling Load	28	-28	0	0
Ventilation Load	0	0	182,413	104
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-7,432	-7,432	-4
Sup. Fan Heat			25	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	1,069	-7,280	176,227	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	95	9
Glass/Door Cond	210	19
Wall Cond	50	5
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	3	0
Sub Total ==>	359	33
Internal Loads		
Lights	349	32
People	0	0
Misc	353	32
Sub Total ==>	703	64
Ceiling Load	30	3
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	1,091	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-89	0.85
Glass Solar	0	0	0.00
Glass/Door Cond	-593	-593	5.69
Wall Cond	-91	-157	1.50
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-9	-9	0.09
Sub Total ==>	-693	-848	8.13
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-24	0	0.00
Ventilation Load	0	-9,705	93.11
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		130	-1.25
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-718	-10,423	100.00

TEMPERATURES

	Cooling	Heating
SADB	70.3	73.1
Ra Plenum	75.7	69.5
Return	75.7	69.5
Ret/OA	93.4	28.5
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	207	207
Terminal	207	207
Main Fan	207	207
Sec Fan	0	0
Nom Vent	5,174	207
AHU Vent	5,174	207
Infil	0	0
MinStop/Rh	0	0
Return	5,174	207
Exhaust	10,142	207
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	100.0	100.0
cfm/ft²	1.50	1.50
cfm/ton	14.09	
ft²/ton	9.40	
Btu/hr·ft²	1,277.18	-1,741.02
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	14.7	176.2	101.3	207	93.4	77.5	115.3	70.2	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	14.7	176.2								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	138		
Part	1,207		
Int Door	0		
ExFlr	0		
Roof	138	0	0
Wall	135	0	0
Ext Door	24	24	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-240.2	207-954.2		73.1
Aux Htg	0.0	0	0.0	0.0
Preheat	-9.8	207	28.5	70.2
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-240.2			

System Checksums

By PB

FCU - Evid Dep — **Fan Coil**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	195	195	3
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	134	68	202	3
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	35		35	1
Sub Total ==>	169	263	431	7
Internal Loads				
Lights	1,160	290	1,450	25
People	0	0	0	0
Misc	1,084	0	1,084	19
Sub Total ==>	2,244	290	2,534	44
Ceiling Load	248	-248	0	0
Ventilation Load	0	0	2,909	50
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-108	-108	-2
Sup. Fan Heat			4	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	2,661	197	5,771	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	264	10
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	5	0
Sub Total ==>	268	10
Internal Loads		
Lights	1,160	42
People	0	0
Misc	1,084	39
Sub Total ==>	2,244	81
Ceiling Load	249	9
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	2,761	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-267	8.80
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-284	-436	14.38
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-28	-28	0.93
Sub Total ==>	-312	-731	24.11
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-188	0	0.00
Ventilation Load	0	-2,383	78.58
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		82	-2.69
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-500	-3,032	100.00

TEMPERATURES

	Cooling	Heating
SADB	58.1	73.1
Ra Plenum	76.9	68.6
Return	76.9	68.6
Ret/OA	82.7	54.5
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	145	145
Terminal	145	145
Main Fan	145	145
Sec Fan	0	0
Nom Vent	51	51
AHU Vent	51	51
Infil	1	1
MinStop/Rh	0	0
Return	145	145
Exhaust	51	51
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	35.1	35.1
cfm/ft²	0.34	0.34
cfm/ton	301.19	
ft²/ton	880.55	
Btu/hr·ft²	13.63	-7.16
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.5	5.8	3.9	145	82.7	68.8	82.0	58.1	56.6	65.2
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.5	5.8								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	423		
Part	909		
Int Door	0		
ExFlr	0		
Roof	423	0	0
Wall	379	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-3.0	145	54.5	73.1
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.6	145	54.5	58.1
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-3.0			

System Checksums

By PB

FCU - Mech — **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	192	192	0
Glass Solar	181	0	181	0
Glass/Door Cond	375	0	375	0
Wall Cond	117	74	191	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	21		21	0
Sub Total ==>	694	266	960	0
Internal Loads				
Lights	524	131	655	0
People	0	0	0	0
Misc	1,025	0	1,025	1
Sub Total ==>	1,550	131	1,681	1
Ceiling Load	94	-94	0	0
Ventilation Load	0	0	199,558	103
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-8,758	-8,758	-5
Sup. Fan Heat			43	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	2,338	-8,456	193,484	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	181	8
Glass/Door Cond	399	17
Wall Cond	153	6
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	9	0
Sub Total ==>	743	31
Internal Loads		
Lights	524	22
People	0	0
Misc	1,025	43
Sub Total ==>	1,550	65
Ceiling Load	100	4
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	2,393	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-256	1.39
Glass Solar	0	0	0.00
Glass/Door Cond	-1,126	-1,126	6.11
Wall Cond	-280	-462	2.50
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-27	-27	0.15
Sub Total ==>	-1,433	-1,871	10.15
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-104	0	0.00
Ventilation Load	0	-16,904	91.66
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		334	-1.81
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-1,537	-18,442	100.00

TEMPERATURES

	Cooling	Heating
SADB	69.1	73.8
Ra Plenum	75.7	69.2
Return	75.7	69.2
Ret/OA	93.4	28.5
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	361	361
Terminal	361	361
Main Fan	361	361
Sec Fan	0	0
Nom Vent	5,408	361
AHU Vent	5,408	361
Infil	1	1
MinStop/Rh	0	0
Return	5,408	361
Exhaust	10,455	361
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	100.0	100.0
cfm/ft²	0.90	0.90
cfm/ton	22.36	
ft²/ton	24.84	
Btu/hr·ft²	483.03	-625.21
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	16.1	193.5	106.3	361	93.4	77.5	115.3	69.0	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	16.1	193.5								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	401		
Part	1,779		
Int Door	0		
ExFlr	0		
Roof	401	0	0
Wall	400	0	0
Ext Door	45	45	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-250.4	361-541.1		73.8
Aux Htg	0.0	0	0.0	0.0
Preheat	-16.5	361	28.5	69.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-250.4			

System Checksums

By PB

FCU - TR#1 **Fan Coil**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	75	75	6
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	13		13	1
Sub Total ==>	13	75	87	7
Internal Loads				
Lights	161	40	201	16
People	0	0	0	0
Misc	406	0	406	33
Sub Total ==>	567	40	608	50
Ceiling Load	64	-64	0	0
Ventilation Load	0	0	544	44
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-14	-14	-1
Sup. Fan Heat			1	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	644	36	1,226	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	3	0
Sub Total ==>	3	0
Internal Loads		
Lights	161	25
People	0	0
Misc	406	64
Sub Total ==>	567	89
Ceiling Load	67	10
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	637	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-101	18.47
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-11	-11	1.94
Sub Total ==>	-11	-111	20.41
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-56	0	0.00
Ventilation Load	0	-446	81.86
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		12	-2.27
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-67	-545	100.00

TEMPERATURES

	Cooling	Heating
SADB	58.8	71.7
Ra Plenum	76.3	68.9
Return	76.3	68.9
Ret/OA	81.0	57.8
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	35	35
Terminal	35	35
Main Fan	35	35
Sec Fan	0	0
Nom Vent	10	10
AHU Vent	10	10
Infil	0	0
MinStop/Rh	0	0
Return	35	35
Exhaust	10	10
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	27.4	27.4
cfm/ft²	0.22	0.22
cfm/ton	339.70	
ft²/ton	1,552.91	
Btu/hr·ft²	7.73	-3.44
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.1	1.2	0.9	35	81.0	67.5	78.1	58.8	56.6	64.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.1	1.2								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	159		
Part	952		
Int Door	0		
ExFlr	0		
Roof	159	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-0.6	35	57.8	71.7
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	35	57.8	58.7
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-0.6			

System Checksums

By PB

Primary - VAV w/ BB

VAV w/Baseboard Skin Heating

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	2,190	2,190	2
Glass Solar	4,206	0	4,206	5
Glass/Door Cond	2,127	0	2,127	2
Wall Cond	1,240	779	2,019	2
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	377		377	0
Sub Total ==>	7,950	2,969	10,919	12
Internal Loads				
Lights	8,532	2,133	10,665	12
People	15,872	0	15,872	18
Misc	12,003	0	12,003	13
Sub Total ==>	36,407	2,133	38,540	43
Ceiling Load	2,153	-2,153	0	0
Ventilation Load	0	0	40,637	45
Adj Air Trans Heat	60		60	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-1,370	-1,370	-2
Sup. Fan Heat			708	1
Ret. Fan Heat		532	532	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	46,571	2,111	90,026	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 19
OADB: 87

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	5,528	13
Glass/Door Cond	2,118	5
Wall Cond	1,648	4
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	94	0
Sub Total ==>	9,387	23
Internal Loads		
Lights	8,532	21
People	8,818	21
Misc	12,003	29
Sub Total ==>	29,353	72
Ceiling Load	2,245	5
Ventilation Load	0	0
Adj Air Trans Heat	60	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	41,045	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-2,923	8.56
Glass Solar	0	0	0.00
Glass/Door Cond	-6,314	-6,314	18.49
Wall Cond	-2,240	-3,666	10.74
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-313	-313	0.92
Sub Total ==>	-8,867	-13,216	38.70
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-2,736	0	0.00
Ventilation Load	0	-21,852	63.99
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		919	-2.69
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-11,604	-34,149	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.8	0.0
Ra Plenum	76.5	0.0
Return	76.7	0.0
Ret/OA	83.4	0.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	1,891	816
Terminal	1,891	816
Main Fan	1,891	816
Sec Fan	0	0
Nom Vent	721	466
AHU Vent	721	466
Infil	7	7
MinStop/Rh	816	816
Return	1,878	816
Exhaust	708	0
Rm Exh	19	7
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	38.1	57.1
cfm/ft²	0.40	0.17
cfm/ton	252.00	
ft²/ton	625.01	
Btu/hr·ft²	19.20	-7.54
No. People	35	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	7.5	90.0	57.1	1,809	83.4	69.6	85.2	55.4	54.2	59.9
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	7.5	90.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	4,689		
Part	34,327		
Int Door	0		
ExFlr	0		
Roof	4,689	0	0
Wall	3,499	280	8
Ext Door	124	124	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	0.0	0	0.0	0.0
Aux Htg	-11.6	0	0.0	0.0
Preheat	-21.9	721	28.5	55.4
Reheat	-13.4	816	55.4	70.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-47.0			

System Checksums

By PB

Secondary - VAV w/ BB Skin | **VAV w/Baseboard Skin Heating**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,084	1,084	3
Glass Solar	362	0	362	1
Glass/Door Cond	237	0	237	1
Wall Cond	244	142	386	1
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	189		189	0
Sub Total ==>	1,032	1,226	2,258	5
Internal Loads				
Lights	5,159	1,290	6,449	15
People	7,650	0	7,650	18
Misc	5,952	0	5,952	14
Sub Total ==>	18,761	1,290	20,051	48
Ceiling Load	1,109	-1,109	0	0
Ventilation Load	0	0	19,487	47
Adj Air Trans Heat	129		129	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-630	-630	-2
Sup. Fan Heat			273	1
Ret. Fan Heat		245	245	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	21,031	1,021	41,812	100.00

CLG SPACE PEAK

Mo/Hr: 10 / 17
OADB: 78

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	1,740	9
Glass/Door Cond	34	0
Wall Cond	397	2
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	12	0
Sub Total ==>	2,182	12
Internal Loads		
Lights	5,159	28
People	4,250	23
Misc	5,952	32
Sub Total ==>	15,361	84
Ceiling Load	722	4
Ventilation Load	0	0
Adj Air Trans Heat	129	1
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
***Grand Total* ==>**	18,395	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,460	11.16
Glass Solar	0	0	0.00
Glass/Door Cond	-694	-694	5.30
Wall Cond	-504	-807	6.16
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-155	-155	1.19
Sub Total ==>	-1,353	-3,117	23.81
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-1,132	0	0.00
Ventilation Load	0	-10,345	79.03
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		372	-2.84
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-2,486	-13,090	100.00

TEMPERATURES

	Cooling	Heating
SADB	56.8	0.0
Ra Plenum	76.5	0.0
Return	76.8	0.0
Ret/OA	83.4	0.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	896	377
Terminal	896	377
Main Fan	896	377
Sec Fan	0	0
Nom Vent	341	221
AHU Vent	341	221
Infil	3	3
MinStop/Rh	377	377
Return	870	380
Exhaust	315	0
Rm Exh	29	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	38.1	58.5
cfm/ft²	0.39	0.16
cfm/ton	257.02	
ft²/ton	667.34	
Btu/hr·ft²	17.98	-7.12
No. People	17	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	3.5	41.8	25.9	852	83.4	69.5	84.7	56.5	54.4	58.8
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	3.5	41.8								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	2,325		
Part	23,823		
Int Door	0		
ExFlr	0		
Roof	2,325	0	0
Wall	767	60	8
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	0.0	0	0.0	0.0
Aux Htg	-2.5	0	0.0	0.0
Preheat	-10.8	341	28.5	56.5
Reheat	-5.7	377	56.5	70.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-19.0			

System Checksums

By PB

CUHs - Vestibules **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	109	109	2
Glass Solar	2,269	0	2,269	51
Glass/Door Cond	843	0	843	19
Wall Cond	129	115	244	5
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	20		20	0
Sub Total ==>	3,260	224	3,484	78
Internal Loads				
Lights	295	74	369	8
People	0	0	0	0
Misc	580	0	580	13
Sub Total ==>	875	74	948	21
Ceiling Load	76	-76	0	0
Ventilation Load	0	0	0	0
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			22	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	4,210	221	4,454	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	2,269	54
Glass/Door Cond	843	20
Wall Cond	129	3
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	6	0
Sub Total ==>	3,246	77
Internal Loads		
Lights	295	7
People	0	0
Misc	580	14
Sub Total ==>	875	21
Ceiling Load	76	2
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	4,196	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-144	4.48
Glass Solar	0	0	0.00
Glass/Door Cond	-2,652	-2,652	82.73
Wall Cond	-207	-396	12.34
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-15	-15	0.47
Sub Total ==>	-2,874	-3,207	100.01
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-85	0	0.00
Ventilation Load	0	0	0.00
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	-0.01
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-2,959	-3,206	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	84.1
Ra Plenum	76.1	68.8
Return	76.0	68.8
Ret/OA	76.0	68.8
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	186	186
Terminal	186	186
Main Fan	186	186
Sec Fan	0	0
Nom Vent	0	0
AHU Vent	0	0
Infil	0	0
MinStop/Rh	0	0
Return	186	186
Exhaust	0	0
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	0.0	0.0
cfm/ft²	0.82	0.82
cfm/ton	500.36	
ft²/ton	610.12	
Btu/hr·ft²	19.67	-14.16
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	0.4	4.5	4.4	186	76.0	58.0	42.3	54.9	49.1	41.9
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.4	4.5								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	226		
Part	2,127		
Int Door	0		
ExFlr	0		
Roof	226	0	0
Wall	375	30	8
Ext Door	93	93	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-3.2	186	68.8	84.1
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-3.2			

System Checksums

By PB

DUMMY **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 5 / 1
Outside Air: OADB/WB/HR: 70 / 58 / 53

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	24	24	14
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	106	45	151	87
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	-2		-2	-1
Sub Total ==>	104	69	173	100
Internal Loads				
Lights	0	0	0	0
People	0	0	0	0
Misc	0	0	0	0
Sub Total ==>	0	0	0	0
Ceiling Load	40	-40	0	0
Ventilation Load	0	0	0	0
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			0	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	144	29	173	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	106	61
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	-1	-1
Sub Total ==>	105	61
Internal Loads		
Lights	0	0
People	0	0
Misc	0	0
Sub Total ==>	0	0
Ceiling Load	68	39
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	173	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-30	6.67
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-287	-413	92.96
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-2	-2	0.55
Sub Total ==>	-289	-445	100.18
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-155	0	0.00
Ventilation Load	0	0	0.00
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		1	-0.18
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-445	-445	100.00

TEMPERATURES

	Cooling	Heating
SADB	80.0	55.0
Ra Plenum	82.2	46.4
Return	82.2	46.4
Ret/OA	82.2	46.4
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	0	0
Terminal	0	0
Main Fan	0	0
Sec Fan	0	0
Nom Vent	0	0
AHU Vent	0	0
Infil	0	0
MinStop/Rh	0	0
Return	0	0
Exhaust	0	0
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	0.0	0.0
cfm/ft²	0.00	0.00
cfm/ton	0.00	
ft²/ton	0.00	
Btu/hr·ft²	0.00	0.00
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.0	0.0	0.0	0	0.0	0.0	75.3	0.0	0.0	75.3
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	57		
Part	5,742		
Int Door	0		
ExFlr	0		
Roof	57	0	0
Wall	384	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	0.0	0	0.0	0.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	46.4	80.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	0.0			

System Checksums

By PB

FCU - Elec — **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	66	66	0
Glass Solar	95	0	95	0
Glass/Door Cond	197	0	197	0
Wall Cond	38	27	65	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	7		7	0
Sub Total ==>	338	93	431	0
Internal Loads				
Lights	349	87	437	0
People	0	0	0	0
Misc	353	0	353	0
Sub Total ==>	703	87	790	0
Ceiling Load	28	-28	0	0
Ventilation Load	0	0	182,413	104
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-7,432	-7,432	-4
Sup. Fan Heat			25	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	1,069	-7,280	176,227	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	95	9
Glass/Door Cond	210	19
Wall Cond	50	5
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	3	0
Sub Total ==>	359	33
Internal Loads		
Lights	349	32
People	0	0
Misc	353	32
Sub Total ==>	703	64
Ceiling Load	30	3
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	1,091	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-89	0.85
Glass Solar	0	0	0.00
Glass/Door Cond	-593	-593	5.69
Wall Cond	-91	-157	1.50
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-9	-9	0.09
Sub Total ==>	-693	-848	8.13
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-24	0	0.00
Ventilation Load	0	-9,705	93.11
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		130	-1.25
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-718	-10,423	100.00

TEMPERATURES

	Cooling	Heating
SADB	70.3	73.1
Ra Plenum	75.7	69.5
Return	75.7	69.5
Ret/OA	93.4	28.5
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	207	207
Terminal	207	207
Main Fan	207	207
Sec Fan	0	0
Nom Vent	5,174	207
AHU Vent	5,174	207
Infil	0	0
MinStop/Rh	0	0
Return	5,174	207
Exhaust	10,142	207
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	100.0	100.0
cfm/ft²	1.50	1.50
cfm/ton	14.09	
ft²/ton	9.40	
Btu/hr·ft²	1,277.18	-1,741.02
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	14.7	176.2	101.3	207	93.4	77.5	115.3	70.2	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	14.7	176.2								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	138		
Part	1,207		
Int Door	0		
ExFlr	0		
Roof	138	0	0
Wall	135	0	0
Ext Door	24	24	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-240.2	207-954.2		73.1
Aux Htg	0.0	0	0.0	0.0
Preheat	-9.8	207	28.5	70.2
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-240.2			

System Checksums

By PB

FCU - Evid Dep — **Fan Coil**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	195	195	3
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	134	68	202	3
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	35		35	1
Sub Total ==>	169	263	431	7
Internal Loads				
Lights	1,160	290	1,450	25
People	0	0	0	0
Misc	1,084	0	1,084	19
Sub Total ==>	2,244	290	2,534	44
Ceiling Load	248	-248	0	0
Ventilation Load	0	0	2,909	50
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-108	-108	-2
Sup. Fan Heat			4	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	2,661	197	5,771	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	264	10
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	5	0
Sub Total ==>	268	10
Internal Loads		
Lights	1,160	42
People	0	0
Misc	1,084	39
Sub Total ==>	2,244	81
Ceiling Load	249	9
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	2,761	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-267	8.80
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	-284	-436	14.38
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-28	-28	0.93
Sub Total ==>	-312	-731	24.11
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-188	0	0.00
Ventilation Load	0	-2,383	78.58
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		82	-2.69
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-500	-3,032	100.00

TEMPERATURES

	Cooling	Heating
SADB	58.1	73.1
Ra Plenum	76.9	68.6
Return	76.9	68.6
Ret/OA	82.7	54.5
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	145	145
Terminal	145	145
Main Fan	145	145
Sec Fan	0	0
Nom Vent	51	51
AHU Vent	51	51
Infil	1	1
MinStop/Rh	0	0
Return	145	145
Exhaust	51	51
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	35.1	35.1
cfm/ft²	0.34	0.34
cfm/ton	301.19	
ft²/ton	880.55	
Btu/hr·ft²	13.63	-7.16
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.5	5.8	3.9	145	82.7	68.8	82.0	58.1	56.6	65.2
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.5	5.8								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	423		
Part	909		
Int Door	0		
ExFlr	0		
Roof	423	0	0
Wall	379	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-3.0	145	54.5	73.1
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.6	145	54.5	58.1
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-3.0			

System Checksums

By PB

FCU - Mech — **Single Zone**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	192	192	0
Glass Solar	181	0	181	0
Glass/Door Cond	375	0	375	0
Wall Cond	117	74	191	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	21		21	0
Sub Total ==>	694	266	960	0
Internal Loads				
Lights	524	131	655	0
People	0	0	0	0
Misc	1,025	0	1,025	1
Sub Total ==>	1,550	131	1,681	1
Ceiling Load	94	-94	0	0
Ventilation Load	0	0	199,558	103
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-8,758	-8,758	-5
Sup. Fan Heat			43	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	2,338	-8,456	193,484	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	181	8
Glass/Door Cond	399	17
Wall Cond	153	6
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	9	0
Sub Total ==>	743	31
Internal Loads		
Lights	524	22
People	0	0
Misc	1,025	43
Sub Total ==>	1,550	65
Ceiling Load	100	4
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
Grand Total ==>	2,393	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-256	1.39
Glass Solar	0	0	0.00
Glass/Door Cond	-1,126	-1,126	6.11
Wall Cond	-280	-462	2.50
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-27	-27	0.15
Sub Total ==>	-1,433	-1,871	10.15
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-104	0	0.00
Ventilation Load	0	-16,904	91.66
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		334	-1.81
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-1,537	-18,442	100.00

TEMPERATURES

	Cooling	Heating
SADB	69.1	73.8
Ra Plenum	75.7	69.2
Return	75.7	69.2
Ret/OA	93.4	28.5
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	361	361
Terminal	361	361
Main Fan	361	361
Sec Fan	0	0
Nom Vent	5,408	361
AHU Vent	5,408	361
Infil	1	1
MinStop/Rh	0	0
Return	5,408	361
Exhaust	10,455	361
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	100.0	100.0
cfm/ft²	0.90	0.90
cfm/ton	22.36	
ft²/ton	24.84	
Btu/hr·ft²	483.03	-625.21
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	16.1	193.5	106.3	361	93.4	77.5	115.3	69.0	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	16.1	193.5								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	401		
Part	1,779		
Int Door	0		
ExFlr	0		
Roof	401	0	0
Wall	400	0	0
Ext Door	45	45	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-250.4	361-541.1		73.8
Aux Htg	0.0	0	0.0	0.0
Preheat	-16.5	361	28.5	69.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-250.4			

System Checksums

By PB

FCU - TR#1 **Fan Coil**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	75	75	6
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	13		13	1
Sub Total ==>	13	75	87	7
Internal Loads				
Lights	161	40	201	16
People	0	0	0	0
Misc	406	0	406	33
Sub Total ==>	567	40	608	50
Ceiling Load	64	-64	0	0
Ventilation Load	0	0	544	44
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-14	-14	-1
Sup. Fan Heat			1	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	644	36	1,226	100.00

CLG SPACE PEAK

Mo/Hr: Sum of
OADB: Peaks

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	3	0
Sub Total ==>	3	0
Internal Loads		
Lights	161	25
People	0	0
Misc	406	64
Sub Total ==>	567	89
Ceiling Load	67	10
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	637	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-101	18.47
Glass Solar	0	0	0.00
Glass/Door Cond	0	0	0.00
Wall Cond	0	0	0.00
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-11	-11	1.94
Sub Total ==>	-11	-111	20.41
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-56	0	0.00
Ventilation Load	0	-446	81.86
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		12	-2.27
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-67	-545	100.00

TEMPERATURES

	Cooling	Heating
SADB	58.8	71.7
Ra Plenum	76.3	68.9
Return	76.3	68.9
Ret/OA	81.0	57.8
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	35	35
Terminal	35	35
Main Fan	35	35
Sec Fan	0	0
Nom Vent	10	10
AHU Vent	10	10
Infil	0	0
MinStop/Rh	0	0
Return	35	35
Exhaust	10	10
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	27.4	27.4
cfm/ft²	0.22	0.22
cfm/ton	339.70	
ft²/ton	1,552.91	
Btu/hr·ft²	7.73	-3.44
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.1	1.2	0.9	35	81.0	67.5	78.1	58.8	56.6	64.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.1	1.2								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	159		
Part	952		
Int Door	0		
ExFlr	0		
Roof	159	0	0
Wall	0	0	0
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-0.6	35	57.8	71.7
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	35	57.8	58.7
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-0.6			

System Checksums

By PB

Primary - PFP w/ Reheat

Parallel Fan-Powered VAV, Htg Coil on Plenum Inlet

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	2,190	2,190	2
Glass Solar	4,206	0	4,206	5
Glass/Door Cond	2,127	0	2,127	2
Wall Cond	1,240	779	2,019	2
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	377		377	0
Sub Total ==>	7,950	2,969	10,919	12
Internal Loads				
Lights	8,532	2,133	10,665	12
People	15,872	0	15,872	18
Misc	12,003	0	12,003	13
Sub Total ==>	36,407	2,133	38,540	43
Ceiling Load	2,153	-2,153	0	0
Ventilation Load	0	0	40,637	45
Adj Air Trans Heat	60		60	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-1,370	-1,370	-2
Sup. Fan Heat			708	1
Ret. Fan Heat		532	532	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	46,571	2,111	90,026	100.00

CLG SPACE PEAK

Mo/Hr: 7 / 19
OADB: 87

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	5,528	13
Glass/Door Cond	2,118	5
Wall Cond	1,648	4
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	94	0
Sub Total ==>	9,387	23
Internal Loads		
Lights	8,532	21
People	8,818	21
Misc	12,003	29
Sub Total ==>	29,353	72
Ceiling Load	2,245	5
Ventilation Load	0	0
Adj Air Trans Heat	60	0
Ov/Undr Sizing	0	0
***Grand Total* ==>**	41,045	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-2,944	6.21
Glass Solar	0	0	0.00
Glass/Door Cond	-6,314	-6,314	13.33
Wall Cond	-2,240	-3,689	7.79
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-313	-313	0.66
Sub Total ==>	-8,867	-13,261	27.99
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-2,299	0	0.00
Ventilation Load	0	-33,800	71.33
Adj Air Trans Heat	-164	-164	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		1,241	-2.62
OA Preheat Diff.		0	0.00
RA Preheat Diff.		-1,401	2.96
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-11,329	-47,384	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.8	78.3
Ra Plenum	76.5	68.5
Return	76.7	68.5
Ret/OA	83.4	33.2
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.1

AIRFLOWS

	Cooling	Heating
Diffuser	1,891	1,209
Terminal	1,891	1,209
Main Fan	1,891	816
Sec Fan	0	393
Nom Vent	721	721
AHU Vent	721	721
Infil	7	7
MinStop/Rh	816	816
Return	1,878	805
Exhaust	708	710
Rm Exh	19	17
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	38.1	59.6
cfm/ft²	0.40	0.08
cfm/ton	252.00	
ft²/ton	625.01	
Btu/hr·ft²	19.20	-10.04
No. People	35	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Enter DB/WB/HR °F	Enter DB/WB/HR gr/lb	Leave DB/WB/HR °F	Leave DB/WB/HR °F	Leave DB/WB/HR gr/lb
Main Clg	7.5	90.0	57.1	1,809	83.4	69.6	85.2	55.4	54.2	59.9
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	7.5	90.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	4,689		
Part	34,327		
Int Door	0		
ExFlr	0		
Roof	4,689	0	0
Wall	3,499	280	8
Ext Door	124	124	100

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-25.1	393	68.5	125.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-21.9	721	28.5	55.4
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-47.1			

System Checksums

By PB

Secondary - PFP w/ Reheat

Parallel Fan-Powered VAV, Htg Coil on Plenum Inlet

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 7 / 15
Outside Air: OADB/WB/HR: 93 / 77 / 115

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	1,084	1,084	3
Glass Solar	362	0	362	1
Glass/Door Cond	237	0	237	1
Wall Cond	244	142	386	1
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	189		189	0
Sub Total ==>	1,032	1,226	2,258	5
Internal Loads				
Lights	5,159	1,290	6,449	15
People	7,650	0	7,650	18
Misc	5,952	0	5,952	14
Sub Total ==>	18,761	1,290	20,051	48
Ceiling Load	1,109	-1,109	0	0
Ventilation Load	0	0	19,487	47
Adj Air Trans Heat	129		129	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		-630	-630	-2
Sup. Fan Heat			273	1
Ret. Fan Heat		245	245	1
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
***Grand Total* ==>**	21,031	1,021	41,812	100.00

CLG SPACE PEAK

Mo/Hr: 10 / 17
OADB: 78

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	1,740	9
Glass/Door Cond	34	0
Wall Cond	397	2
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	12	0
Sub Total ==>	2,182	12
Internal Loads		
Lights	5,159	28
People	4,250	23
Misc	5,952	32
Sub Total ==>	15,361	84
Ceiling Load	722	4
Ventilation Load	0	0
Adj Air Trans Heat	129	1
Ov/Undr Sizing		
Exhaust Heat		
OA Preheat Diff.		
RA Preheat Diff.		
Additional Reheat		
Underflr Sup Ht Pkup		
Supply Air Leakage		
***Grand Total* ==>**	18,395	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 29

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	-1,466	7.47
Glass Solar	0	0	0.00
Glass/Door Cond	-694	-694	3.54
Wall Cond	-504	-812	4.14
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0	0	0
Infiltration	-155	-155	0.79
Sub Total ==>	-1,353	-3,128	15.95
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	-1,019	0	0.00
Ventilation Load	0	-16,005	81.60
Adj Air Trans Heat	-483	-483	2
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		487	-2.48
OA Preheat Diff.		0	0.00
RA Preheat Diff.		-485	2.47
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
***Grand Total* ==>**	-2,856	-19,614	100.00

TEMPERATURES

	Cooling	Heating
SADB	56.8	74.9
Ra Plenum	76.5	68.6
Return	76.8	68.6
Ret/OA	83.4	32.3
Fn MtrTD	0.0	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.1

AIRFLOWS

	Cooling	Heating
Diffuser	896	513
Terminal	896	513
Main Fan	896	377
Sec Fan	0	136
Nom Vent	341	341
AHU Vent	341	341
Infil	3	3
MinStop/Rh	377	377
Return	870	347
Exhaust	315	311
Rm Exh	29	33
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	38.1	66.6
cfm/ft²	0.39	0.06
cfm/ton	257.02	
ft²/ton	667.34	
Btu/hr·ft²	17.98	-8.38
No. People	17	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	3.5	41.8	25.9	852	83.4	69.5	84.7	56.5	54.4	58.8
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	3.5	41.8								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	2,325		
Part	23,823		
Int Door	0		
ExFlr	0		
Roof	2,325	0	0
Wall	767	60	8
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-8.7	136	68.6	125.1
Aux Htg	0.0	0	0.0	0.0
Preheat	-10.8	341	28.5	56.5
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-19.5			

ASHRAE Standard 62.1-2004/2007

By PB

System Ventilation Requirements

AHU Location	Description		∑Vpz cfm	Ps People	∑ Pz People	D Ps / ∑Pz	Vou cfm	Vps cfm	Xs	Ev	Vot cfm	%OA Vot / Vps
Alternative 1												
Zone	Default System	Cooling	0	0	0	1.00	0	0	0.000	1.000	0	0.0
		Heating	0	0	0	1.00	0	0	0.000	1.000	0	0.0
Zone	System - 002	Cooling	461	4	4	1.00	123	461	0.268	0.964	128	27.8
		Heating	461	4	4	1.00	123	461	0.268	0.964	128	27.8
Zone	System - 003	Cooling	273	1	1	1.00	64	273	0.234	1.000	64	23.4
		Heating	273	1	1	1.00	64	273	0.234	1.000	64	23.4
Zone	System - 004	Cooling	508	5	5	1.00	156	508	0.307	0.996	156	30.8
		Heating	508	5	5	1.00	156	508	0.307	0.996	156	30.8
Zone	System - 005	Cooling	255	0	0	1.00	83	255	0.324	1.000	83	32.4
		Heating	255	0	0	1.00	83	255	0.324	1.000	83	32.4
Zone	System - 006	Cooling	92	0	0	1.00	28	92	0.311	1.000	28	31.1
		Heating	92	0	0	1.00	28	92	0.311	1.000	28	31.1
Zone	System - 007	Cooling	69	0	0	1.00	33	69	0.476	1.000	33	47.6
		Heating	69	0	0	1.00	33	69	0.476	1.000	33	47.6
Zone	System - 008	Cooling	647	0	0	1.00	121	647	0.187	0.526	230	35.5
		Heating	647	0	0	1.00	121	647	0.187	0.526	230	35.5
Zone	System - 009	Cooling	150	1	1	1.00	34	150	0.226	1.000	34	22.6
		Heating	150	1	1	1.00	34	150	0.226	1.000	34	22.6
Zone	System - 010	Cooling	216	0	0	1.00	87	216	0.404	1.000	87	40.4
		Heating	216	0	0	1.00	87	216	0.404	1.000	87	40.4
Zone	System - 011	Cooling	111	1	1	1.00	61	111	0.548	0.829	74	66.1
		Heating	111	1	1	1.00	61	111	0.548	0.829	74	66.1
Zone	System - 012	Cooling	549	10	10	1.00	266	549	0.484	0.752	353	64.3
		Heating	549	10	10	1.00	266	549	0.484	0.752	353	64.3
Zone	System - 013	Cooling	471	5	5	1.00	118	471	0.251	0.858	138	29.3
		Heating	471	5	5	1.00	118	471	0.251	0.858	138	29.3
Zone	System - 014	Cooling	502	9	9	1.00	87	502	0.174	0.931	94	18.7
		Heating	502	9	9	1.00	87	502	0.174	0.931	94	18.7

ASHRAE Standard 62.1-2004/2007

By PB

System Ventilation Requirements

AHU Location	Description		∑Vpz cfm	Ps People	∑ Pz People	D Ps / ∑Pz	Vou cfm	Vps cfm	Xs	Ev	Vot cfm	%OA Vot / Vps
Alternative 1												
Zone	System - 015	Cooling	132	0	0	1.00	86	132	0.649	0.966	89	67.2
		Heating	132	0	0	1.00	86	132	0.649	0.966	89	67.2
Zone	System - 016	Cooling	452	12	12	1.00	185	452	0.410	0.667	278	61.5
		Heating	452	12	12	1.00	185	452	0.410	0.667	278	61.5
Zone	System - 017	Cooling	220	1	1	1.00	95	220	0.432	0.731	130	59.2
		Heating	220	1	1	1.00	95	220	0.432	0.731	130	59.2
Zone	System - 018	Cooling	239	4	4	1.00	49	239	0.203	1.000	49	20.3
		Heating	239	4	4	1.00	49	239	0.203	1.000	49	20.3
Zone	System - 019	Cooling	45	0	0	1.00	16	45	0.352	1.000	16	35.2
		Heating	45	0	0	1.00	16	45	0.352	1.000	16	35.2
Zone	System - 020	Cooling	72	0	0	1.00	14	72	0.191	1.000	14	19.1
		Heating	72	0	0	1.00	14	72	0.191	1.000	14	19.1
Zone	System - 021	Cooling	193	0	0	1.00	17	193	0.088	1.000	17	8.8
		Heating	193	0	0	1.00	17	193	0.088	1.000	17	8.8

ASHRAE Standard 62.1-2004/2007

By PB

Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	Cooling Ez	Cooling Voz cfm	Heating Ez	Heating Voz cfm
Alternative 1									
11 Space	0.00	0.00	0.00	1	0	1.00	0	1.00	0
14 Space	0.00	0.00	0.00	1	0	1.00	0	1.00	0
15 Space	0.00	0.00	0.00	2	0	1.00	0	1.00	0
18 Space	0.00	0.00	0.00	8	0	1.00	0	1.00	0
20 Space	0.00	0.00	0.00	3	0	1.00	0	1.00	0
27 Space	0.00	0.00	0.00	11	0	1.00	0	1.00	0
28 Space	0.00	0.00	0.00	3	0	1.00	0	1.00	0
42 Space	0.00	0.00	0.00	2	0	1.00	0	1.00	0
43 Space	0.00	0.00	0.00	2	0	1.00	0	1.00	0
46 Space	0.00	0.00	0.00	2	0	1.00	0	1.00	0
48 Space	0.00	0.00	0.00	1	0	1.00	0	1.00	0
50 Space	0.00	0.00	0.00	1	0	1.00	0	1.00	0
52 Space	0.00	0.00	0.00	1	0	1.00	0	1.00	0
53 Space	0.00	0.00	0.00	2	0	1.00	0	1.00	0
56 Space	0.00	0.00	0.00	0	0	1.00	0	1.00	0
58 Space	0.00	0.00	0.00	1	0	1.00	0	1.00	0
59 Space	0.00	0.00	0.00	0	0	1.00	0	1.00	0
61 Space	0.00	0.00	0.00	0	0	1.00	0	1.00	0
64 Space	0.00	0.00	0.00	0	0	1.00	0	1.00	0
67 Space	0.00	0.00	0.00	0	0	1.00	0	1.00	0
70 Space	0.00	0.00	0.00	0	0	1.00	0	1.00	0
71 Space	0.00	0.00	0.00	4	0	1.00	0	1.00	0
72 Space	0.00	0.00	0.00	8	0	1.00	0	1.00	0
74 Space	0.00	0.00	0.00	2	0	1.00	0	1.00	0
75 Space	0.00	0.00	0.00	0	0	1.00	0	1.00	0
Default	0.00	0.00	0.00	57	0		0		0
Default System	0.00	0.00	0.00	57	0		0		0
135 ADMINISTRATIVE/ OPERATIONS ROOM	0.00	4.00	0.21	516	106	1.00	106	1.00	106
134 RECYCLE CLOSET	0.00	0.00	0.21	84	17	1.00	17	1.00	17
ADMIN / OPS ROOM	0.00	4.00	0.21	599	123		123		123
System - 002	0.00	4.00	0.21	599	123		123		123

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Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	— Cooling — Ez	— Cooling — Voz cfm	— Heating — Ez	— Heating — Voz cfm
Alternative 1									
133 SPECIAL AGENTS OFFICE	0.00	1.00	0.21	310	64	1.00	64	1.00	64
SPECIAL AGENTS OFFICE	0.00	1.00	0.21	310	64		64		64
System - 003	0.00	1.00	0.21	310	64		64		64
128 RESIDENT AGENT CRIMINAL INTELLIGEN(	0.00	1.00	0.21	138	28	1.00	28	1.00	28
129 TEAM CHIEF OFFICE	0.00	1.00	0.21	151	31	1.00	31	1.00	31
130 INVESTIGATIVE OPS TECH OFFICE	0.00	1.00	0.21	158	33	1.00	33	1.00	33
131 DRUG SUPPRESSION TEAM OFFICE	0.00	1.00	0.21	151	31	1.00	31	1.00	31
132 SPECIAL AGENTS OFFICE	0.00	1.00	0.21	158	33	1.00	33	1.00	33
NORTH OFFICES	0.00	5.00	0.21	757	156		156		156
System - 004	0.00	5.00	0.21	757	156		156		156
126 MECHANICAL ROOM	0.00	0.00	0.21	401	83	1.00	83	1.00	83
MECHANICAL ROOM	0.00	0.00	0.21	401	83		83		83
System - 005	0.00	0.00	0.21	401	83		83		83
125 ELECTRICAL ROOM	0.00	0.00	0.21	138	28	1.00	28	1.00	28
ELECTRICAL ROOM	0.00	0.00	0.21	138	28		28		28
System - 006	0.00	0.00	0.21	138	28		28		28
124 TELECOM ROOM	0.00	0.00	0.21	159	33	1.00	33	1.00	33
TELECOM ROOM	0.00	0.00	0.21	159	33		33		33
System - 007	0.00	0.00	0.21	159	33		33		33
122 TABLE OF ORGANIZATION AND EQUIPMEI	0.00	0.00	0.21	501	103	1.00	103	1.00	103
123 ARMS VAULT	0.00	0.00	0.21	86	18	1.00	18	1.00	18
TOE STORAGE	0.00	0.00	0.21	586	121		121		121
System - 008	0.00	0.00	0.21	586	121		121		121
121 DUTY AGENT OFFICE	0.00	1.00	0.21	165	34	1.00	34	1.00	34
DUTY AGENT OFFICE	0.00	1.00	0.21	165	34		34		34
System - 009	0.00	1.00	0.21	165	34		34		34
119 EVIDENCE DEPOSITORY ROOM	0.00	0.00	0.21	423	87	1.00	87	1.00	87
EVIDENCE DEPOSITORY	0.00	0.00	0.21	423	87		87		87
System - 010	0.00	0.00	0.21	423	87		87		87
117 CORRIDOR	0.00	0.00	0.21	137	28	1.00	28	1.00	28
120 EVIDENCE PROCESSING ROOM	0.00	1.00	0.21	159	33	1.00	33	1.00	33

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Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	— Cooling — Ez	— Cooling — Voz cfm	— Heating — Ez	— Heating — Voz cfm
Alternative 1									
EVIDENCE PROCESSING	0.00	1.00	0.21	297	61		61		61
System - 011	0.00	1.00	0.21	297	61		61		61
112 POLYGRAPH OFFICE	0.00	2.00	0.21	110	23	1.00	23	1.00	23
113 POLYGRAPH EXAM ROOM	0.00	2.00	0.21	116	24	1.00	24	1.00	24
114 OBSERVATION ROOM	0.00	2.00	0.21	120	25	1.00	25	1.00	25
115 SUSPECT WAITING ROOM	0.00	4.00	0.21	150	31	1.00	31	1.00	31
117A CORRIDOR	0.00	0.00	0.21	384	79	1.00	79	1.00	79
127B CORRIDOR	0.00	0.00	0.21	345	71	1.00	71	1.00	71
116 SUSPECT TOILET	0.00	0.00	0.21	65	13	1.00	13	1.00	13
CORE SUSPECT AREA	0.00	10.00	0.21	1,290	266		266		266
System - 012	0.00	10.00	0.21	1,290	266		266		266
109 SMALL INTERVIEW ROOM #2	0.00	2.00	0.21	144	30	1.00	30	1.00	30
110 SMALL INTERVIEW ROOM #1	0.00	2.00	0.21	139	29	1.00	29	1.00	29
111 PHOTO ID ROOM	0.00	0.00	0.21	125	26	1.00	26	1.00	26
118 EVIDENCE CUSTODIAN OFFICE	0.00	1.00	0.21	166	34	1.00	34	1.00	34
SOUTHWEST OFFICES	0.00	5.00	0.21	574	118		118		118
System - 013	0.00	5.00	0.21	574	118		118		118
107 SPECIAL AGENT IN CHARGE OFFICE	0.00	1.00	0.21	192	40	1.00	40	1.00	40
108 LARGE INTERVIEW ROOM	0.00	8.00	0.21	231	48	1.00	48	1.00	48
SOUTH OFFICES	0.00	9.00	0.21	423	87		87		87
System - 014	0.00	9.00	0.21	423	87		87		87
105A CORRIDOR	0.00	0.00	0.21	136	28	1.00	28	1.00	28
127A CORRIDOR	0.00	0.00	0.21	165	34	1.00	34	1.00	34
136 SHOWER	0.00	0.00	0.21	116	24	1.00	24	1.00	24
SHOWER	0.00	0.00	0.21	416	86		86		86
System - 015	0.00	0.00	0.21	416	86		86		86
105 CORRIDOR	0.00	0.00	0.21	181	37	1.00	37	1.00	37
106 MULTI-PURPOSE LOUNGE	0.00	12.00	0.21	556	115	1.00	115	1.00	115
127 CORRIDOR	0.00	0.00	0.21	161	33	1.00	33	1.00	33
MULTI-PURPOSE ROOM	0.00	12.00	0.21	898	185		185		185
System - 016	0.00	12.00	0.21	898	185		185		185

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Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	— Cooling — Ez	— Cooling — Voz cfm	— Heating — Ez	— Heating — Voz cfm
Alternative 1									
102 CORRIDOR	0.00	0.00	0.21	131	27	1.00	27	1.00	27
103 MEN	0.00	0.47	0.21	145	30	1.00	30	1.00	30
104 WOMEN	0.00	0.48	0.21	147	30	1.00	30	1.00	30
137 JANITOR	0.00	0.00	0.21	40	8	1.00	8	1.00	8
RESTROOMS	0.00	0.95	0.21	463	95		95		95
System - 017	0.00	0.95	0.21	463	95		95		95
101 VISITOR WAITING AREA	0.00	4.00	0.21	236	49	1.00	49	1.00	49
VISITOR WAITING	0.00	4.00	0.21	236	49		49		49
System - 018	0.00	4.00	0.21	236	49		49		49
003 VESTIBULE NORTH	0.00	0.00	0.21	77	16	1.00	16	1.00	16
VESTIBULE NORTH	0.00	0.00	0.21	77	16		16		16
System - 019	0.00	0.00	0.21	77	16		16		16
002 VESTIBULE WEST	0.00	0.00	0.21	67	14	1.00	14	1.00	14
VESTIBULE WEST	0.00	0.00	0.21	67	14		14		14
System - 020	0.00	0.00	0.21	67	14		14		14
001 ENTRY VESTIBULE	0.00	0.00	0.21	82	17	1.00	17	1.00	17
ENTRY VESTIBULE	0.00	0.00	0.21	82	17		17		17
System - 021	0.00	0.00	0.21	82	17		17		17

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System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 1														
11 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
14 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
15 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
18 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
20 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
27 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
28 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
42 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
43 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
46 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
48 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
50 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
52 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
53 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
56 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
58 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
59 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
61 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
64 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
67 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
70 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
71 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
72 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
74 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
75 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
Default		0	0	0	0	0							1.000	
Default System		0	0	0	0	0							1.000	
135 ADMINISTRATIVE/ OPERATI(	Single Fan CV	405	405	405	0	106	0.263	1.00	0.00	1.00	1.00	1.00	1.000	
134 RECYCLE CLOSET	Single Fan CV	57	57	57	0	17	0.303	1.00	0.00	1.00	1.00	1.00	0.964	*
ADMIN / OPS ROOM		461	461	461	0	123							0.964	
System - 002		461	461	461	0	123							0.964	
133 SPECIAL AGENTS OFFICE	Single Fan CV	273	273	273	0	64	0.234	1.00	0.00	1.00	1.00	1.00	1.000	*
SPECIAL AGENTS OFFICE		273	273	273	0	64							1.000	

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System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 1														
System - 003		273	273	273	0	64							1.000	
128 RESIDENT AGENT CRIMINAL	Single Fan CV	95	95	95	0	28	0.299	1.00	0.00	1.00	1.00	1.00	1.000	
129 TEAM CHIEF OFFICE	Single Fan CV	102	102	102	0	31	0.307	1.00	0.00	1.00	1.00	1.00	1.000	
130 INVESTIGATIVE OPS TECH (	Single Fan CV	105	105	105	0	33	0.310	1.00	0.00	1.00	1.00	1.00	0.996	*
131 DRUG SUPPRESSION TEAM	Single Fan CV	102	102	102	0	31	0.307	1.00	0.00	1.00	1.00	1.00	1.000	
132 SPECIAL AGENTS OFFICE	Single Fan CV	105	105	105	0	33	0.310	1.00	0.00	1.00	1.00	1.00	0.996	
NORTH OFFICES		508	508	508	0	156							0.996	
System - 004		508	508	508	0	156							0.996	
126 MECHANICAL ROOM	Single Fan CV	255	255	255	0	83	0.324	1.00	0.00	1.00	1.00	1.00	1.000	*
MECHANICAL ROOM		255	255	255	0	83							1.000	
System - 005		255	255	255	0	83							1.000	
125 ELECTRICAL ROOM	Single Fan CV	92	92	92	0	28	0.311	1.00	0.00	1.00	1.00	1.00	1.000	*
ELECTRICAL ROOM		92	92	92	0	28							1.000	
System - 006		92	92	92	0	28							1.000	
124 TELECOM ROOM	Single Fan CV	69	69	69	0	33	0.476	1.00	0.00	1.00	1.00	1.00	1.000	*
TELECOM ROOM		69	69	69	0	33							1.000	
System - 007		69	69	69	0	33							1.000	
122 TABLE OF ORGANIZATION A	Single Fan CV	620	620	620	0	103	0.166	1.00	0.00	1.00	1.00	1.00	1.000	
123 ARMS VAULT	Single Fan CV	27	27	27	0	18	0.661	1.00	0.00	1.00	1.00	1.00	0.526	*
TOE STORAGE		647	647	647	0	121							0.526	
System - 008		647	647	647	0	121							0.526	
121 DUTY AGENT OFFICE	Single Fan CV	150	150	150	0	34	0.226	1.00	0.00	1.00	1.00	1.00	1.000	*
DUTY AGENT OFFICE		150	150	150	0	34							1.000	
System - 009		150	150	150	0	34							1.000	
119 EVIDENCE DEPOSITORY RC	Single Fan CV	216	216	216	0	87	0.404	1.00	0.00	1.00	1.00	1.00	1.000	*
EVIDENCE DEPOSITORY		216	216	216	0	87							1.000	
System - 010		216	216	216	0	87							1.000	
117 CORRIDOR	Single Fan CV	39	39	39	0	28	0.719	1.00	0.00	1.00	1.00	1.00	0.829	*
120 EVIDENCE PROCESSING RC	Single Fan CV	72	72	72	0	33	0.455	1.00	0.00	1.00	1.00	1.00	1.000	
EVIDENCE PROCESSING		111	111	111	0	61							0.829	
System - 011		111	111	111	0	61							0.829	
112 POLYGRAPH OFFICE	Single Fan CV	66	66	66	0	23	0.342	1.00	0.00	1.00	1.00	1.00	1.000	
113 POLYGRAPH EXAM ROOM	Single Fan CV	68	68	68	0	24	0.349	1.00	0.00	1.00	1.00	1.00	1.000	

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System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 1														
114 OBSERVATION ROOM	Single Fan CV	70	70	70	0	25	0.354	1.00	0.00	1.00	1.00	1.00	1.000	
115 SUSPECT WAITING ROOM	Single Fan CV	107	107	107	0	31	0.289	1.00	0.00	1.00	1.00	1.00	1.000	
117A CORRIDOR	Single Fan CV	108	108	108	0	79	0.732	1.00	0.00	1.00	1.00	1.00	0.752	*
127B CORRIDOR	Single Fan CV	97	97	97	0	71	0.732	1.00	0.00	1.00	1.00	1.00	0.752	*
116 SUSPECT TOILET	Single Fan CV	33	33	33	0	13	0.411	1.00	0.00	1.00	1.00	1.00	1.000	
CORE SUSPECT AREA		549	549	549	0	266							0.752	
System - 012		549	549	549	0	266							0.752	
109 SMALL INTERVIEW ROOM #2	Single Fan CV	155	155	155	0	30	0.191	1.00	0.00	1.00	1.00	1.00	1.000	
110 SMALL INTERVIEW ROOM #1	Single Fan CV	152	152	152	0	29	0.188	1.00	0.00	1.00	1.00	1.00	1.000	
111 PHOTO ID ROOM	Single Fan CV	66	66	66	0	26	0.393	1.00	0.00	1.00	1.00	1.00	0.858	*
118 EVIDENCE CUSTODIAN OFF	Single Fan CV	98	98	98	0	34	0.349	1.00	0.00	1.00	1.00	1.00	0.902	
SOUTHWEST OFFICES		471	471	471	0	118							0.858	
System - 013		471	471	471	0	118							0.858	
107 SPECIAL AGENT IN CHARGE	Single Fan CV	163	163	163	0	40	0.242	1.00	0.00	1.00	1.00	1.00	0.931	*
108 LARGE INTERVIEW ROOM	Single Fan CV	338	338	338	0	48	0.141	1.00	0.00	1.00	1.00	1.00	1.000	
SOUTH OFFICES		502	502	502	0	87							0.931	
System - 014		502	502	502	0	87							0.931	
105A CORRIDOR	Single Fan CV	41	41	41	0	28	0.683	1.00	0.00	1.00	1.00	1.00	0.966	
127A CORRIDOR	Single Fan CV	50	50	50	0	34	0.683	1.00	0.00	1.00	1.00	1.00	0.966	*
136 SHOWER	Single Fan CV	41	41	41	0	24	0.575	1.00	0.00	1.00	1.00	1.00	1.000	
SHOWER		132	132	132	0	86							0.966	
System - 015		132	132	132	0	86							0.966	
105 CORRIDOR	Single Fan CV	50	50	50	0	37	0.743	1.00	0.00	1.00	1.00	1.00	0.667	
106 MULTI-PURPOSE LOUNGE	Single Fan CV	357	357	357	0	115	0.321	1.00	0.00	1.00	1.00	1.00	1.000	
127 CORRIDOR	Single Fan CV	45	45	45	0	33	0.743	1.00	0.00	1.00	1.00	1.00	0.667	*
MULTI-PURPOSE ROOM		452	452	452	0	185							0.667	
System - 016		452	452	452	0	185							0.667	
102 CORRIDOR	Single Fan CV	38	38	38	0	27	0.701	1.00	0.00	1.00	1.00	1.00	0.731	*
103 MEN	Single Fan CV	80	80	80	0	30	0.373	1.00	0.00	1.00	1.00	1.00	1.000	
104 WOMEN	Single Fan CV	85	85	85	0	30	0.355	1.00	0.00	1.00	1.00	1.00	1.000	
137 JANITOR	Single Fan CV	17	17	17	0	8	0.496	1.00	0.00	1.00	1.00	1.00	0.936	
RESTROOMS		220	220	220	0	95							0.731	
System - 017		220	220	220	0	95							0.731	

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System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 1														
101 VISITOR WAITING AREA	Single Fan CV	239	239	239	0	49	0.203	1.00	0.00	1.00	1.00	1.00	1.000	*
VISITOR WAITING		239	239	239	0	49							1.000	
System - 018		239	239	239	0	49							1.000	
003 VESTIBULE NORTH	Single Fan CV	45	45	45	0	16	0.352	1.00	0.00	1.00	1.00	1.00	1.000	*
VESTIBULE NORTH		45	45	45	0	16							1.000	
System - 019		45	45	45	0	16							1.000	
002 VESTIBULE WEST	Single Fan CV	72	72	72	0	14	0.191	1.00	0.00	1.00	1.00	1.00	1.000	*
VESTIBULE WEST		72	72	72	0	14							1.000	
System - 020		72	72	72	0	14							1.000	
001 ENTRY VESTIBULE	Single Fan CV	193	193	193	0	17	0.088	1.00	0.00	1.00	1.00	1.00	1.000	*
ENTRY VESTIBULE		193	193	193	0	17							1.000	
System - 021		193	193	193	0	17							1.000	

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Ventilation Calculations for Heating Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 1														
11 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
14 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
15 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
18 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
20 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
27 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
28 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
42 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
43 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
46 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
48 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
50 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
52 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
53 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
56 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
58 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
59 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
61 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
64 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
67 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
70 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
71 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
72 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
74 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
75 Space	Single Fan CV	0	0	0	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
Default		0	0	0	0	0							1.000	
Default System		0	0	0	0	0							1.000	
135 ADMINISTRATIVE/ OPERATI(	Single Fan CV	405	405	405	0	106	0.263	1.00	0.00	1.00	1.00	1.00	1.000	
134 RECYCLE CLOSET	Single Fan CV	57	57	57	0	17	0.303	1.00	0.00	1.00	1.00	1.00	0.964	*
ADMIN / OPS ROOM		461	461	461	0	123							0.964	
System - 002		461	461	461	0	123							0.964	
133 SPECIAL AGENTS OFFICE	Single Fan CV	273	273	273	0	64	0.234	1.00	0.00	1.00	1.00	1.00	1.000	*
SPECIAL AGENTS OFFICE		273	273	273	0	64							1.000	

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Ventilation Calculations for Heating Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 1														
System - 003		273	273	273	0	64							1.000	
128 RESIDENT AGENT CRIMINAL	Single Fan CV	95	95	95	0	28	0.299	1.00	0.00	1.00	1.00	1.00	1.000	
129 TEAM CHIEF OFFICE	Single Fan CV	102	102	102	0	31	0.307	1.00	0.00	1.00	1.00	1.00	1.000	
130 INVESTIGATIVE OPS TECH C	Single Fan CV	105	105	105	0	33	0.310	1.00	0.00	1.00	1.00	1.00	0.996	*
131 DRUG SUPPRESSION TEAM	Single Fan CV	102	102	102	0	31	0.307	1.00	0.00	1.00	1.00	1.00	1.000	
132 SPECIAL AGENTS OFFICE	Single Fan CV	105	105	105	0	33	0.310	1.00	0.00	1.00	1.00	1.00	0.996	
NORTH OFFICES		508	508	508	0	156							0.996	
System - 004		508	508	508	0	156							0.996	
126 MECHANICAL ROOM	Single Fan CV	255	255	255	0	83	0.324	1.00	0.00	1.00	1.00	1.00	1.000	*
MECHANICAL ROOM		255	255	255	0	83							1.000	
System - 005		255	255	255	0	83							1.000	
125 ELECTRICAL ROOM	Single Fan CV	92	92	92	0	28	0.311	1.00	0.00	1.00	1.00	1.00	1.000	*
ELECTRICAL ROOM		92	92	92	0	28							1.000	
System - 006		92	92	92	0	28							1.000	
124 TELECOM ROOM	Single Fan CV	69	69	69	0	33	0.476	1.00	0.00	1.00	1.00	1.00	1.000	*
TELECOM ROOM		69	69	69	0	33							1.000	
System - 007		69	69	69	0	33							1.000	
122 TABLE OF ORGANIZATION A	Single Fan CV	620	620	620	0	103	0.166	1.00	0.00	1.00	1.00	1.00	1.000	
123 ARMS VAULT	Single Fan CV	27	27	27	0	18	0.661	1.00	0.00	1.00	1.00	1.00	0.526	*
TOE STORAGE		647	647	647	0	121							0.526	
System - 008		647	647	647	0	121							0.526	
121 DUTY AGENT OFFICE	Single Fan CV	150	150	150	0	34	0.226	1.00	0.00	1.00	1.00	1.00	1.000	*
DUTY AGENT OFFICE		150	150	150	0	34							1.000	
System - 009		150	150	150	0	34							1.000	
119 EVIDENCE DEPOSITORY RO	Single Fan CV	216	216	216	0	87	0.404	1.00	0.00	1.00	1.00	1.00	1.000	*
EVIDENCE DEPOSITORY		216	216	216	0	87							1.000	
System - 010		216	216	216	0	87							1.000	
117 CORRIDOR	Single Fan CV	39	39	39	0	28	0.719	1.00	0.00	1.00	1.00	1.00	0.829	*
120 EVIDENCE PROCESSING RC	Single Fan CV	72	72	72	0	33	0.455	1.00	0.00	1.00	1.00	1.00	1.000	
EVIDENCE PROCESSING		111	111	111	0	61							0.829	
System - 011		111	111	111	0	61							0.829	
112 POLYGRAPH OFFICE	Single Fan CV	66	66	66	0	23	0.342	1.00	0.00	1.00	1.00	1.00	1.000	
113 POLYGRAPH EXAM ROOM	Single Fan CV	68	68	68	0	24	0.349	1.00	0.00	1.00	1.00	1.00	1.000	

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Ventilation Calculations for Heating Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 1														
114 OBSERVATION ROOM	Single Fan CV	70	70	70	0	25	0.354	1.00	0.00	1.00	1.00	1.00	1.000	
115 SUSPECT WAITING ROOM	Single Fan CV	107	107	107	0	31	0.289	1.00	0.00	1.00	1.00	1.00	1.000	
117A CORRIDOR	Single Fan CV	108	108	108	0	79	0.732	1.00	0.00	1.00	1.00	1.00	0.752	*
127B CORRIDOR	Single Fan CV	97	97	97	0	71	0.732	1.00	0.00	1.00	1.00	1.00	0.752	*
116 SUSPECT TOILET	Single Fan CV	33	33	33	0	13	0.411	1.00	0.00	1.00	1.00	1.00	1.000	
CORE SUSPECT AREA		549	549	549	0	266							0.752	
System - 012		549	549	549	0	266							0.752	
109 SMALL INTERVIEW ROOM #2	Single Fan CV	155	155	155	0	30	0.191	1.00	0.00	1.00	1.00	1.00	1.000	
110 SMALL INTERVIEW ROOM #1	Single Fan CV	152	152	152	0	29	0.188	1.00	0.00	1.00	1.00	1.00	1.000	
111 PHOTO ID ROOM	Single Fan CV	66	66	66	0	26	0.393	1.00	0.00	1.00	1.00	1.00	0.858	*
118 EVIDENCE CUSTODIAN OFF	Single Fan CV	98	98	98	0	34	0.349	1.00	0.00	1.00	1.00	1.00	0.902	
SOUTHWEST OFFICES		471	471	471	0	118							0.858	
System - 013		471	471	471	0	118							0.858	
107 SPECIAL AGENT IN CHARGE	Single Fan CV	163	163	163	0	40	0.242	1.00	0.00	1.00	1.00	1.00	0.931	*
108 LARGE INTERVIEW ROOM	Single Fan CV	338	338	338	0	48	0.141	1.00	0.00	1.00	1.00	1.00	1.000	
SOUTH OFFICES		502	502	502	0	87							0.931	
System - 014		502	502	502	0	87							0.931	
105A CORRIDOR	Single Fan CV	41	41	41	0	28	0.683	1.00	0.00	1.00	1.00	1.00	0.966	
127A CORRIDOR	Single Fan CV	50	50	50	0	34	0.683	1.00	0.00	1.00	1.00	1.00	0.966	*
136 SHOWER	Single Fan CV	41	41	41	0	24	0.575	1.00	0.00	1.00	1.00	1.00	1.000	
SHOWER		132	132	132	0	86							0.966	
System - 015		132	132	132	0	86							0.966	
105 CORRIDOR	Single Fan CV	50	50	50	0	37	0.743	1.00	0.00	1.00	1.00	1.00	0.667	
106 MULTI-PURPOSE LOUNGE	Single Fan CV	357	357	357	0	115	0.321	1.00	0.00	1.00	1.00	1.00	1.000	
127 CORRIDOR	Single Fan CV	45	45	45	0	33	0.743	1.00	0.00	1.00	1.00	1.00	0.667	*
MULTI-PURPOSE ROOM		452	452	452	0	185							0.667	
System - 016		452	452	452	0	185							0.667	
102 CORRIDOR	Single Fan CV	38	38	38	0	27	0.701	1.00	0.00	1.00	1.00	1.00	0.731	*
103 MEN	Single Fan CV	80	80	80	0	30	0.373	1.00	0.00	1.00	1.00	1.00	1.000	
104 WOMEN	Single Fan CV	85	85	85	0	30	0.355	1.00	0.00	1.00	1.00	1.00	1.000	
137 JANITOR	Single Fan CV	17	17	17	0	8	0.496	1.00	0.00	1.00	1.00	1.00	0.936	
RESTROOMS		220	220	220	0	95							0.731	
System - 017		220	220	220	0	95							0.731	

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Ventilation Calculations for Heating Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 1														
101 VISITOR WAITING AREA	Single Fan CV	239	239	239	0	49	0.203	1.00	0.00	1.00	1.00	1.00	1.000	*
VISITOR WAITING		239	239	239	0	49							1.000	
System - 018		239	239	239	0	49							1.000	
003 VESTIBULE NORTH	Single Fan CV	45	45	45	0	16	0.352	1.00	0.00	1.00	1.00	1.00	1.000	*
VESTIBULE NORTH		45	45	45	0	16							1.000	
System - 019		45	45	45	0	16							1.000	
002 VESTIBULE WEST	Single Fan CV	72	72	72	0	14	0.191	1.00	0.00	1.00	1.00	1.00	1.000	*
VESTIBULE WEST		72	72	72	0	14							1.000	
System - 020		72	72	72	0	14							1.000	
001 ENTRY VESTIBULE	Single Fan CV	193	193	193	0	17	0.088	1.00	0.00	1.00	1.00	1.00	1.000	*
ENTRY VESTIBULE		193	193	193	0	17							1.000	
System - 021		193	193	193	0	17							1.000	

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System Ventilation Requirements

AHU Location	Description		∑Vpz cfm	Ps People	∑ Pz People	D Ps / ∑Pz	Vou cfm	Vps cfm	Xs	Ev	Vot cfm	%OA Vot / Vps
Alternative 2												
System	Primary - VAV w/ BB	Cooling	2,061	35	35	1.00	466	1,891	0.246	0.646	721	38.1
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
System	Secondary - VAV w/ BB Skin	Cooling	941	17	17	1.00	221	896	0.246	0.646	341	38.1
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	DUMMY	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	CUHs - Vestibules	Cooling	186	0	0	1.00	0	186	0.000	1.000	0	0.0
		Heating	186	0	0	1.00	0	186	0.000	1.000	0	0.0
Zone	FCU - Elec	Cooling	207	0	0	1.00	207	207	1.000	1.000	207	100.0
		Heating	207	0	0	1.00	207	207	1.000	1.000	207	100.0
Room	FCU - Evid Dep	Cooling	145	0	0	1.00	51	145	0.351	1.000	51	35.1
		Heating	145	0	0	1.00	51	145	0.351	1.000	51	35.1
Room	FCU - TR#1	Cooling	35	0	0	1.00	10	35	0.274	1.000	10	27.4
		Heating	35	0	0	1.00	10	35	0.274	1.000	10	27.4
Zone	FCU - Mech	Cooling	361	0	0	1.00	361	361	1.000	1.000	361	100.0
		Heating	361	0	0	1.00	361	361	1.000	1.000	361	100.0

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Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	— Cooling — Ez	— Cooling — Voz cfm	— Heating — Ez	— Heating — Voz cfm
Alternative 2									
101 VISITOR WAITING AREA	5.00	4.00	0.06	236	34	1.00	34	0.00	0
VISITOR WAITING	5.00	4.00	0.06	236	34		34		0
102 CORRIDOR	0.00	0.00	0.06	131	8	1.00	8	0.00	0
103 MEN	0.00	0.00	0.00	145	0	1.00	0	0.00	0
104 WOMEN	0.00	0.00	0.00	147	0	1.00	0	0.00	0
137 JANITOR	0.00	0.00	0.00	40	0	1.00	0	0.00	0
RESTROOMS	0.00	0.00	0.02	463	8		8		0
105 CORRIDOR	0.00	0.00	0.06	181	11	1.00	11	0.00	0
106 MULTI-PURPOSE LOUNGE	5.00	12.00	0.06	556	93	1.00	93	0.00	0
127 CORRIDOR	0.00	0.00	0.06	161	10	1.00	10	0.00	0
MULTI-PURPOSE ROOM	5.00	12.00	0.06	898	114		114		0
105A CORRIDOR	0.00	0.00	0.06	136	8	1.00	8	0.00	0
127A CORRIDOR	0.00	0.00	0.06	165	10	1.00	10	0.00	0
136 SHOWER	0.00	0.00	0.00	116	0	1.00	0	0.00	0
SHOWER	0.00	0.00	0.04	416	18		18		0
107 SPECIAL AGENT IN CHARGE OFFICE	5.00	1.00	0.06	192	17	1.00	17	0.00	0
108 LARGE INTERVIEW ROOM	5.00	8.00	0.06	231	54	1.00	54	0.00	0
SOUTH OFFICES	5.00	9.00	0.06	423	70		70		0
122 TABLE OF ORGANIZATION AND EQUIPME!	0.00	0.00	0.12	501	60	1.00	60	0.00	0
123 ARMS VAULT	0.00	0.00	0.12	86	10	1.00	10	0.00	0
TOE STORAGE	0.00	0.00	0.12	586	70		70		0
128 RESIDENT AGENT CRIMINAL INTELLIGEN(	5.00	1.00	0.06	138	13	1.00	13	0.00	0
129 TEAM CHIEF OFFICE	5.00	1.00	0.06	151	14	1.00	14	0.00	0
130 INVESTIGATIVE OPS TECH OFFICE	5.00	1.00	0.06	158	14	1.00	14	0.00	0
131 DRUG SUPPRESSION TEAM OFFICE	5.00	1.00	0.06	151	14	1.00	14	0.00	0
132 SPECIAL AGENTS OFFICE	5.00	1.00	0.06	158	14	1.00	14	0.00	0
NORTH OFFICES	5.00	5.00	0.06	757	70		70		0
133 SPECIAL AGENTS OFFICE	5.00	1.00	0.06	310	24	1.00	24	0.00	0
SPECIAL AGENTS OFFICE	5.00	1.00	0.06	310	24		24		0
135 ADMINISTRATIVE/ OPERATIONS ROOM	5.00	4.00	0.06	516	51	1.00	51	0.00	0
134 RECYCLE CLOSET	5.00	0.27	0.06	84	6	1.00	6	0.00	0

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Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	Cooling Ez	Cooling Voz cfm	Heating Ez	Heating Voz cfm
Alternative 2									
ADMIN / OPS ROOM	5.00	4.27	0.06	599	57		57		0
Primary - VAV w/ BB	5.00	35.27	0.06	4,689	466		466		0
109 SMALL INTERVIEW ROOM #2	5.00	2.00	0.06	144	19	1.00	19	0.00	0
110 SMALL INTERVIEW ROOM #1	5.00	2.00	0.06	139	18	1.00	18	0.00	0
111 PHOTO ID ROOM	5.00	0.00	0.06	125	8	1.00	8	0.00	0
118 EVIDENCE CUSTODIAN OFFICE	5.00	1.00	0.06	166	15	1.00	15	0.00	0
SOUTHWEST OFFICES	5.00	5.00	0.06	574	59		59		0
112 POLYGRAPH OFFICE	5.00	2.00	0.06	110	17	1.00	17	0.00	0
113 POLYGRAPH EXAM ROOM	5.00	2.00	0.06	116	17	1.00	17	0.00	0
114 OBSERVATION ROOM	5.00	2.00	0.06	120	17	1.00	17	0.00	0
115 SUSPECT WAITING ROOM	5.00	4.00	0.06	150	29	1.00	29	0.00	0
117A CORRIDOR	0.00	0.00	0.06	384	23	1.00	23	0.00	0
127B CORRIDOR	0.00	0.00	0.06	345	21	1.00	21	0.00	0
116 SUSPECT TOILET	0.00	0.00	0.00	65	0	1.00	0	0.00	0
CORE SUSPECT AREA	5.00	10.00	0.06	1,290	123		123		0
117 CORRIDOR	0.00	0.00	0.06	137	8	1.00	8	0.00	0
120 EVIDENCE PROCESSING ROOM	5.00	1.00	0.06	159	15	1.00	15	0.00	0
EVIDENCE PROCESSING	5.00	1.00	0.06	297	23		23		0
121 DUTY AGENT OFFICE	5.00	1.00	0.06	165	15	1.00	15	0.00	0
DUTY AGENT OFFICE	5.00	1.00	0.06	165	15		15		0
Secondary - VAV w/ BB Skin	5.00	17.00	0.06	2,325	221		221		0
Default	0.00	0.00	0.00	0	0		0		0
DUMMY	0.00	0.00	0.00	0	0		0		0
001 ENTRY VESTIBULE	0.00	0.00	0.00	82	0	1.00	0	1.00	0
ENTRY VESTIBULE	0.00	0.00	0.00	82	0		0		0
002 VESTIBULE WEST	0.00	0.00	0.00	67	0	1.00	0	1.00	0
VESTIBULE WEST	0.00	0.00	0.00	67	0		0		0
003 VESTIBULE NORTH	0.00	0.00	0.00	77	0	1.00	0	1.00	0
VESTIBULE NORTH	0.00	0.00	0.00	77	0		0		0
CUHs - Vestibules	0.00	0.00	0.00	226	0		0		0
125 ELECTRICAL ROOM	0.00	0.00	10.00	138	207	1.00	207	1.00	207

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Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	— Cooling — Ez	— Cooling — Voz cfm	— Heating — Ez	— Heating — Voz cfm
Alternative 2									
ELECTRICAL ROOM	0.00	0.00	1.50	138	207		207		207
FCU - Elec	0.00	0.00	1.50	138	207		207		207
119 EVIDENCE DEPOSITORY ROOM	0.00	0.00	0.12	423	51	1.00	51	1.00	51
EVIDENCE DEPOSITORY	0.00	0.00	0.12	423	51		51		51
FCU - Evid Dep	0.00	0.00	0.12	423	51		51		51
124 TELECOM ROOM	0.00	0.00	0.06	159	10	1.00	10	1.00	10
TELECOM ROOM	0.00	0.00	0.06	159	10		10		10
FCU - TR#1	0.00	0.00	0.06	159	10		10		10
126 MECHANICAL ROOM	0.00	0.00	6.00	401	361	1.00	361	1.00	361
MECHANICAL ROOM	0.00	0.00	0.90	401	361		361		361
FCU - Mech	0.00	0.00	0.90	401	361		361		361

ASHRAE Standard 62.1-2004/2007

By PB

Ventilation Calculations for Cooling Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 2														
101 VISITOR WAITING AREA	Shutoff VAV	125	125	125	57	34	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
VISITOR WAITING		125	125	125	57	34							0.646	
102 CORRIDOR	Shutoff VAV	25	25	25	13	8	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
103 MEN	Shutoff VAV	41	41	41	12	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	
104 WOMEN	Shutoff VAV	42	42	42	13	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	
137 JANITOR	Shutoff VAV	9	9	9	3	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	
RESTROOMS		116	116	116	41	8							0.646	
105 CORRIDOR	Shutoff VAV	38	38	38	18	11	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
106 MULTI-PURPOSE LOUNGE	Shutoff VAV	261	261	261	156	93	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
127 CORRIDOR	Shutoff VAV	51	51	51	16	10	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
MULTI-PURPOSE ROOM		350	350	350	190	114							0.646	
105A CORRIDOR	Shutoff VAV	19	19	19	14	8	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
127A CORRIDOR	Shutoff VAV	46	46	46	16	10	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
136 SHOWER	Shutoff VAV	20	20	20	6	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	
SHOWER		86	86	86	36	18							0.646	
107 SPECIAL AGENT IN CHARGE	Shutoff VAV	93	93	93	28	17	0.594	1.00	0.00	1.00	1.00	1.00	0.653	
108 LARGE INTERVIEW ROOM	Shutoff VAV	236	236	236	90	54	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
SOUTH OFFICES		329	329	329	118	70							0.646	
122 TABLE OF ORGANIZATION A	Shutoff VAV	337	337	337	101	60	0.594	1.00	0.00	1.00	1.00	1.00	0.652	
123 ARMS VAULT	Shutoff VAV	19	19	19	17	10	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
TOE STORAGE		356	356	356	118	70							0.646	
128 RESIDENT AGENT CRIMINAL	Shutoff VAV	57	57	57	22	13	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
129 TEAM CHIEF OFFICE	Shutoff VAV	62	62	62	23	14	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
130 INVESTIGATIVE OPS TECH (	Shutoff VAV	63	63	63	24	14	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
131 DRUG SUPPRESSION TEAM	Shutoff VAV	62	62	62	23	14	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
132 SPECIAL AGENTS OFFICE	Shutoff VAV	63	63	63	24	14	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
NORTH OFFICES		308	308	308	117	70							0.646	
133 SPECIAL AGENTS OFFICE	Shutoff VAV	147	147	147	44	24	0.537	1.00	0.00	1.00	1.00	1.00	0.710	
SPECIAL AGENTS OFFICE		147	147	147	44	24							0.710	
135 ADMINISTRATIVE/ OPERATI(	Shutoff VAV	217	217	217	85	51	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
134 RECYCLE CLOSET	Shutoff VAV	28	28	28	11	6	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
ADMIN / OPS ROOM		244	244	244	96	57							0.646	
Primary - VAV w/ BB		2,061	1,891	2,061	816	466							0.646	

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By PB

Ventilation Calculations for Cooling Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 2														
109 SMALL INTERVIEW ROOM #2	Shutoff VAV	105	105	105	32	19	0.591	1.00	0.00	1.00	1.00	1.00	0.655	
110 SMALL INTERVIEW ROOM #1	Shutoff VAV	104	104	104	31	18	0.586	1.00	0.00	1.00	1.00	1.00	0.660	
111 PHOTO ID ROOM	Shutoff VAV	38	38	38	13	8	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
118 EVIDENCE CUSTODIAN OFF	Shutoff VAV	59	59	59	25	15	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
SOUTHWEST OFFICES		306	306	306	100	59							0.646	
112 POLYGRAPH OFFICE	Shutoff VAV	58	58	58	28	17	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
113 POLYGRAPH EXAM ROOM	Shutoff VAV	59	59	59	28	17	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
114 OBSERVATION ROOM	Shutoff VAV	58	58	58	29	17	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
115 SUSPECT WAITING ROOM	Shutoff VAV	97	97	97	48	29	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
117A CORRIDOR	Shutoff VAV	58	58	58	38	23	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
127B CORRIDOR	Shutoff VAV	102	102	102	34	21	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
116 SUSPECT TOILET	Shutoff VAV	27	27	27	8	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	
CORE SUSPECT AREA		457	457	457	214	123							0.646	
117 CORRIDOR	Shutoff VAV	44	44	44	14	8	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
120 EVIDENCE PROCESSING RC	Shutoff VAV	50	50	50	24	15	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
EVIDENCE PROCESSING		95	95	95	38	23							0.646	
121 DUTY AGENT OFFICE	Shutoff VAV	82	82	82	25	15	0.600	1.00	0.00	1.00	1.00	1.00	0.646	*
DUTY AGENT OFFICE		82	82	82	25	15							0.646	
Secondary - VAV w/ BB Skin		941	896	941	377	221							0.646	
Default		0	0	0	0	0							0.000	
DUMMY		0	0	0	0	0							0.000	
001 ENTRY VESTIBULE	Single Fan CV	109	109	109	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
ENTRY VESTIBULE		109	109	109	0	0							1.000	
002 VESTIBULE WEST	Single Fan CV	49	49	49	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
VESTIBULE WEST		49	49	49	0	0							1.000	
003 VESTIBULE NORTH	Single Fan CV	28	28	28	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
VESTIBULE NORTH		28	28	28	0	0							1.000	
CUHs - Vestibules		186	186	186	0	0							1.000	
125 ELECTRICAL ROOM	Single Fan CV	207	207	207	0	207	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
ELECTRICAL ROOM		207	207	207	0	207							1.000	
FCU - Elec		207	207	207	0	207							1.000	
119 EVIDENCE DEPOSITORY RC	Single Fan CV	145	145	145	0	51	0.351	1.00	0.00	1.00	1.00	1.00	0.000	
EVIDENCE DEPOSITORY		145	145	145	0	51							1.000	

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By PB

Ventilation Calculations for Cooling Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 2														
FCU - Evid Dep		145	145	145	0	51							1.000	
124 TELECOM ROOM	Single Fan CV	35	35	35	0	10	0.274	1.00	0.00	1.00	1.00	1.00	0.000	
TELECOM ROOM		35	35	35	0	10							1.000	
FCU - TR#1		35	35	35	0	10							1.000	
126 MECHANICAL ROOM	Single Fan CV	361	361	361	0	361	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
MECHANICAL ROOM		361	361	361	0	361							1.000	
FCU - Mech		361	361	361	0	361							1.000	

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By PB

Ventilation Calculations for Heating Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz
Alternative 2													
101 VISITOR WAITING AREA	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
VISITOR WAITING		0	0	0	0	0							0.000
102 CORRIDOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
103 MEN	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
104 WOMEN	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
137 JANITOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
RESTROOMS		0	0	0	0	0							0.000
105 CORRIDOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
106 MULTI-PURPOSE LOUNGE	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
127 CORRIDOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
MULTI-PURPOSE ROOM		0	0	0	0	0							0.000
105A CORRIDOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
127A CORRIDOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
136 SHOWER	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
SHOWER		0	0	0	0	0							0.000
107 SPECIAL AGENT IN CHARGE	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
108 LARGE INTERVIEW ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
SOUTH OFFICES		0	0	0	0	0							0.000
122 TABLE OF ORGANIZATION A	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
123 ARMS VAULT	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
TOE STORAGE		0	0	0	0	0							0.000
128 RESIDENT AGENT CRIMINAL	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
129 TEAM CHIEF OFFICE	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
130 INVESTIGATIVE OPS TECH C	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
131 DRUG SUPPRESSION TEAM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
132 SPECIAL AGENTS OFFICE	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
NORTH OFFICES		0	0	0	0	0							0.000
133 SPECIAL AGENTS OFFICE	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
SPECIAL AGENTS OFFICE		0	0	0	0	0							0.000
135 ADMINISTRATIVE/ OPERATIC	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
134 RECYCLE CLOSET	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000
ADMIN / OPS ROOM		0	0	0	0	0							0.000
Primary - VAV w/ BB		0	0	0	0	0							0.000

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By PB

Ventilation Calculations for Heating Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 2														
109 SMALL INTERVIEW ROOM #2	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000	
110 SMALL INTERVIEW ROOM #1	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000	
111 PHOTO ID ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000	
118 EVIDENCE CUSTODIAN OFF	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000	
SOUTHWEST OFFICES		0	0	0	0	0							0.000	
112 POLYGRAPH OFFICE	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000	
113 POLYGRAPH EXAM ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000	
114 OBSERVATION ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000	
115 SUSPECT WAITING ROOM	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000	
117A CORRIDOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000	
127B CORRIDOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000	
116 SUSPECT TOILET	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000	
CORE SUSPECT AREA		0	0	0	0	0							0.000	
117 CORRIDOR	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000	
120 EVIDENCE PROCESSING RC	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000	
EVIDENCE PROCESSING		0	0	0	0	0							0.000	
121 DUTY AGENT OFFICE	Induction	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.000	
DUTY AGENT OFFICE		0	0	0	0	0							0.000	
Secondary - VAV w/ BB Skin		0	0	0	0	0							0.000	
Default		0	0	0	0	0							0.000	
DUMMY		0	0	0	0	0							0.000	
001 ENTRY VESTIBULE	Single Fan CV	109	109	109	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
ENTRY VESTIBULE		109	109	109	0	0							1.000	
002 VESTIBULE WEST	Single Fan CV	49	49	49	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
VESTIBULE WEST		49	49	49	0	0							1.000	
003 VESTIBULE NORTH	Single Fan CV	28	28	28	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
VESTIBULE NORTH		28	28	28	0	0							1.000	
CUHs - Vestibules		186	186	186	0	0							1.000	
125 ELECTRICAL ROOM	Single Fan CV	207	207	207	0	207	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
ELECTRICAL ROOM		207	207	207	0	207							1.000	
FCU - Elec		207	207	207	0	207							1.000	
119 EVIDENCE DEPOSITORY RO	Single Fan CV	145	145	145	0	51	0.351	1.00	0.00	1.00	1.00	1.00	0.000	
EVIDENCE DEPOSITORY		145	145	145	0	51							1.000	

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By PB

Ventilation Calculations for Heating Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 2														
FCU - Evid Dep		145	145	145	0	51							1.000	
124 TELECOM ROOM	Single Fan CV	35	35	35	0	10	0.274	1.00	0.00	1.00	1.00	1.00	0.000	
TELECOM ROOM		35	35	35	0	10							1.000	
FCU - TR#1		35	35	35	0	10							1.000	
126 MECHANICAL ROOM	Single Fan CV	361	361	361	0	361	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
MECHANICAL ROOM		361	361	361	0	361							1.000	
FCU - Mech		361	361	361	0	361							1.000	

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System Ventilation Requirements

AHU Location	Description		∑Vpz cfm	Ps People	∑ Pz People	D Ps / ∑Pz	Vou cfm	Vps cfm	Xs	Ev	Vot cfm	%OA Vot / Vps
Alternative 3												
System	Primary - PFP w/ Reheat	Cooling	2,061	35	35	1.00	466	1,891	0.246	0.646	721	38.1
		Heating	816	35	35	1.00	466	816	0.571	0.971	480	58.8
System	Secondary - PFP w/ Reheat	Cooling	941	17	17	1.00	221	896	0.246	0.646	341	38.1
		Heating	377	17	17	1.00	221	377	0.585	0.985	224	59.4
Zone	DUMMY	Cooling	0	0	0	0.00	0	0	0.000	0.000	0	0.0
		Heating	0	0	0	0.00	0	0	0.000	0.000	0	0.0
Zone	CUHs - Vestibules	Cooling	186	0	0	1.00	0	186	0.000	1.000	0	0.0
		Heating	186	0	0	1.00	0	186	0.000	1.000	0	0.0
Zone	FCU - Elec	Cooling	207	0	0	1.00	207	207	1.000	1.000	207	100.0
		Heating	207	0	0	1.00	207	207	1.000	1.000	207	100.0
Room	FCU - Evid Dep	Cooling	145	0	0	1.00	51	145	0.351	1.000	51	35.1
		Heating	145	0	0	1.00	51	145	0.351	1.000	51	35.1
Room	FCU - TR#1	Cooling	35	0	0	1.00	10	35	0.274	1.000	10	27.4
		Heating	35	0	0	1.00	10	35	0.274	1.000	10	27.4
Zone	FCU - Mech	Cooling	361	0	0	1.00	361	361	1.000	1.000	361	100.0
		Heating	361	0	0	1.00	361	361	1.000	1.000	361	100.0

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By PB

Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	— Cooling — Ez	— Cooling — Voz cfm	— Heating — Ez	— Heating — Voz cfm
Alternative 3									
101 VISITOR WAITING AREA	5.00	4.00	0.06	236	34	1.00	34	1.00	34
VISITOR WAITING	5.00	4.00	0.06	236	34		34		34
102 CORRIDOR	0.00	0.00	0.06	131	8	1.00	8	1.00	8
103 MEN	0.00	0.00	0.00	145	0	1.00	0	1.00	0
104 WOMEN	0.00	0.00	0.00	147	0	1.00	0	1.00	0
137 JANITOR	0.00	0.00	0.00	40	0	1.00	0	1.00	0
RESTROOMS	0.00	0.00	0.02	463	8		8		8
105 CORRIDOR	0.00	0.00	0.06	181	11	1.00	11	1.00	11
106 MULTI-PURPOSE LOUNGE	5.00	12.00	0.06	556	93	1.00	93	1.00	93
127 CORRIDOR	0.00	0.00	0.06	161	10	1.00	10	1.00	10
MULTI-PURPOSE ROOM	5.00	12.00	0.06	898	114		114		114
105A CORRIDOR	0.00	0.00	0.06	136	8	1.00	8	1.00	8
127A CORRIDOR	0.00	0.00	0.06	165	10	1.00	10	1.00	10
136 SHOWER	0.00	0.00	0.00	116	0	1.00	0	1.00	0
SHOWER	0.00	0.00	0.04	416	18		18		18
107 SPECIAL AGENT IN CHARGE OFFICE	5.00	1.00	0.06	192	17	1.00	17	1.00	17
108 LARGE INTERVIEW ROOM	5.00	8.00	0.06	231	54	1.00	54	1.00	54
SOUTH OFFICES	5.00	9.00	0.06	423	70		70		70
122 TABLE OF ORGANIZATION AND EQUIPMEI	0.00	0.00	0.12	501	60	1.00	60	1.00	60
123 ARMS VAULT	0.00	0.00	0.12	86	10	1.00	10	1.00	10
TOE STORAGE	0.00	0.00	0.12	586	70		70		70
128 RESIDENT AGENT CRIMINAL INTELLIGEN(	5.00	1.00	0.06	138	13	1.00	13	1.00	13
129 TEAM CHIEF OFFICE	5.00	1.00	0.06	151	14	1.00	14	1.00	14
130 INVESTIGATIVE OPS TECH OFFICE	5.00	1.00	0.06	158	14	1.00	14	1.00	14
131 DRUG SUPPRESSION TEAM OFFICE	5.00	1.00	0.06	151	14	1.00	14	1.00	14
132 SPECIAL AGENTS OFFICE	5.00	1.00	0.06	158	14	1.00	14	1.00	14
NORTH OFFICES	5.00	5.00	0.06	757	70		70		70
133 SPECIAL AGENTS OFFICE	5.00	1.00	0.06	310	24	1.00	24	1.00	24
SPECIAL AGENTS OFFICE	5.00	1.00	0.06	310	24		24		24
135 ADMINISTRATIVE/ OPERATIONS ROOM	5.00	4.00	0.06	516	51	1.00	51	1.00	51
134 RECYCLE CLOSET	5.00	0.27	0.06	84	6	1.00	6	1.00	6

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Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	Cooling Ez	Cooling Voz cfm	Heating Ez	Heating Voz cfm
Alternative 3									
ADMIN / OPS ROOM	5.00	4.27	0.06	599	57		57		57
Primary - PFP w/ Reheat	5.00	35.27	0.06	4,689	466		466		466
109 SMALL INTERVIEW ROOM #2	5.00	2.00	0.06	144	19	1.00	19	1.00	19
110 SMALL INTERVIEW ROOM #1	5.00	2.00	0.06	139	18	1.00	18	1.00	18
111 PHOTO ID ROOM	5.00	0.00	0.06	125	8	1.00	8	1.00	8
118 EVIDENCE CUSTODIAN OFFICE	5.00	1.00	0.06	166	15	1.00	15	1.00	15
SOUTHWEST OFFICES	5.00	5.00	0.06	574	59		59		59
112 POLYGRAPH OFFICE	5.00	2.00	0.06	110	17	1.00	17	1.00	17
113 POLYGRAPH EXAM ROOM	5.00	2.00	0.06	116	17	1.00	17	1.00	17
114 OBSERVATION ROOM	5.00	2.00	0.06	120	17	1.00	17	1.00	17
115 SUSPECT WAITING ROOM	5.00	4.00	0.06	150	29	1.00	29	1.00	29
117A CORRIDOR	0.00	0.00	0.06	384	23	1.00	23	1.00	23
127B CORRIDOR	0.00	0.00	0.06	345	21	1.00	21	1.00	21
116 SUSPECT TOILET	0.00	0.00	0.00	65	0	1.00	0	1.00	0
CORE SUSPECT AREA	5.00	10.00	0.06	1,290	123		123		123
117 CORRIDOR	0.00	0.00	0.06	137	8	1.00	8	1.00	8
120 EVIDENCE PROCESSING ROOM	5.00	1.00	0.06	159	15	1.00	15	1.00	15
EVIDENCE PROCESSING	5.00	1.00	0.06	297	23		23		23
121 DUTY AGENT OFFICE	5.00	1.00	0.06	165	15	1.00	15	1.00	15
DUTY AGENT OFFICE	5.00	1.00	0.06	165	15		15		15
Secondary - PFP w/ Reheat	5.00	17.00	0.06	2,325	221		221		221
Default	0.00	0.00	0.00	0	0		0		0
DUMMY	0.00	0.00	0.00	0	0		0		0
001 ENTRY VESTIBULE	0.00	0.00	0.00	82	0	1.00	0	1.00	0
ENTRY VESTIBULE	0.00	0.00	0.00	82	0		0		0
002 VESTIBULE WEST	0.00	0.00	0.00	67	0	1.00	0	1.00	0
VESTIBULE WEST	0.00	0.00	0.00	67	0		0		0
003 VESTIBULE NORTH	0.00	0.00	0.00	77	0	1.00	0	1.00	0
VESTIBULE NORTH	0.00	0.00	0.00	77	0		0		0
CUHs - Vestibules	0.00	0.00	0.00	226	0		0		0
125 ELECTRICAL ROOM	0.00	0.00	10.00	138	207	1.00	207	1.00	207

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Ventilation Parameters

System Zone Room	Rp cfm / p	Pz People	Ra cfm/ft²	Az ft²	Vbz cfm	— Cooling — Ez	— Cooling — Voz cfm	— Heating — Ez	— Heating — Voz cfm
Alternative 3									
ELECTRICAL ROOM	0.00	0.00	1.50	138	207		207		207
FCU - Elec	0.00	0.00	1.50	138	207		207		207
119 EVIDENCE DEPOSITORY ROOM	0.00	0.00	0.12	423	51	1.00	51	1.00	51
EVIDENCE DEPOSITORY	0.00	0.00	0.12	423	51		51		51
FCU - Evid Dep	0.00	0.00	0.12	423	51		51		51
124 TELECOM ROOM	0.00	0.00	0.06	159	10	1.00	10	1.00	10
TELECOM ROOM	0.00	0.00	0.06	159	10		10		10
FCU - TR#1	0.00	0.00	0.06	159	10		10		10
126 MECHANICAL ROOM	0.00	0.00	6.00	401	361	1.00	361	1.00	361
MECHANICAL ROOM	0.00	0.00	0.90	401	361		361		361
FCU - Mech	0.00	0.00	0.90	401	361		361		361

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Ventilation Calculations for Cooling Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 3														
101 VISITOR WAITING AREA	PFP Reheat	125	125	125	57	34	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
VISITOR WAITING		125	125	125	57	34							0.646	
102 CORRIDOR	PFP Reheat	25	25	25	13	8	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
103 MEN	PFP Reheat	41	41	41	12	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000	
104 WOMEN	PFP Reheat	42	42	42	13	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000	
137 JANITOR	PFP Reheat	9	9	9	3	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000	
RESTROOMS		116	116	116	41	8							0.646	
105 CORRIDOR	PFP Reheat	38	38	38	18	11	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
106 MULTI-PURPOSE LOUNGE	PFP Reheat	261	261	261	156	93	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
127 CORRIDOR	PFP Reheat	51	51	51	16	10	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
MULTI-PURPOSE ROOM		350	350	350	190	114							0.646	
105A CORRIDOR	PFP Reheat	19	19	19	14	8	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
127A CORRIDOR	PFP Reheat	46	46	46	16	10	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
136 SHOWER	PFP Reheat	20	20	20	6	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000	
SHOWER		86	86	86	36	18							0.646	
107 SPECIAL AGENT IN CHARGE	PFP Reheat	93	93	93	28	17	0.594	1.00	0.30	1.00	1.00	1.00	0.653	
108 LARGE INTERVIEW ROOM	PFP Reheat	236	236	236	90	54	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
SOUTH OFFICES		329	329	329	118	70							0.646	
122 TABLE OF ORGANIZATION A	PFP Reheat	337	337	337	101	60	0.594	1.00	0.30	1.00	1.00	1.00	0.652	
123 ARMS VAULT	PFP Reheat	19	19	19	17	10	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
TOE STORAGE		356	356	356	118	70							0.646	
128 RESIDENT AGENT CRIMINAL	PFP Reheat	57	57	57	22	13	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
129 TEAM CHIEF OFFICE	PFP Reheat	62	62	62	23	14	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
130 INVESTIGATIVE OPS TECH (	PFP Reheat	63	63	63	24	14	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
131 DRUG SUPPRESSION TEAM	PFP Reheat	62	62	62	23	14	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
132 SPECIAL AGENTS OFFICE	PFP Reheat	63	63	63	24	14	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
NORTH OFFICES		308	308	308	117	70							0.646	
133 SPECIAL AGENTS OFFICE	PFP Reheat	147	147	147	44	24	0.537	1.00	0.30	1.00	1.00	1.00	0.710	
SPECIAL AGENTS OFFICE		147	147	147	44	24							0.710	
135 ADMINISTRATIVE/ OPERATI(	PFP Reheat	217	217	217	85	51	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
134 RECYCLE CLOSET	PFP Reheat	28	28	28	11	6	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
ADMIN / OPS ROOM		244	244	244	96	57							0.646	
Primary - PFP w/ Reheat		2,061	1,891	2,061	816	466							0.646	

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Ventilation Calculations for Cooling Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 3														
109 SMALL INTERVIEW ROOM #2	PFP Reheat	105	105	105	32	19	0.591	1.00	0.30	1.00	1.00	1.00	0.655	
110 SMALL INTERVIEW ROOM #1	PFP Reheat	104	104	104	31	18	0.586	1.00	0.30	1.00	1.00	1.00	0.660	
111 PHOTO ID ROOM	PFP Reheat	38	38	38	13	8	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
118 EVIDENCE CUSTODIAN OFF	PFP Reheat	59	59	59	25	15	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
SOUTHWEST OFFICES		306	306	306	100	59							0.646	
112 POLYGRAPH OFFICE	PFP Reheat	58	58	58	28	17	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
113 POLYGRAPH EXAM ROOM	PFP Reheat	59	59	59	28	17	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
114 OBSERVATION ROOM	PFP Reheat	58	58	58	29	17	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
115 SUSPECT WAITING ROOM	PFP Reheat	97	97	97	48	29	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
117A CORRIDOR	PFP Reheat	58	58	58	38	23	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
127B CORRIDOR	PFP Reheat	102	102	102	34	21	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
116 SUSPECT TOILET	PFP Reheat	27	27	27	8	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000	
CORE SUSPECT AREA		457	457	457	214	123							0.646	
117 CORRIDOR	PFP Reheat	44	44	44	14	8	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
120 EVIDENCE PROCESSING RC	PFP Reheat	50	50	50	24	15	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
EVIDENCE PROCESSING		95	95	95	38	23							0.646	
121 DUTY AGENT OFFICE	PFP Reheat	82	82	82	25	15	0.600	1.00	0.30	1.00	1.00	1.00	0.646	*
DUTY AGENT OFFICE		82	82	82	25	15							0.646	
Secondary - PFP w/ Reheat		941	896	941	377	221							0.646	
Default		0	0	0	0	0							0.000	
DUMMY		0	0	0	0	0							0.000	
001 ENTRY VESTIBULE	Single Fan CV	109	109	109	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
ENTRY VESTIBULE		109	109	109	0	0							1.000	
002 VESTIBULE WEST	Single Fan CV	49	49	49	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
VESTIBULE WEST		49	49	49	0	0							1.000	
003 VESTIBULE NORTH	Single Fan CV	28	28	28	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
VESTIBULE NORTH		28	28	28	0	0							1.000	
CUHs - Vestibules		186	186	186	0	0							1.000	
125 ELECTRICAL ROOM	Single Fan CV	207	207	207	0	207	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
ELECTRICAL ROOM		207	207	207	0	207							1.000	
FCU - Elec		207	207	207	0	207							1.000	
119 EVIDENCE DEPOSITORY RC	Single Fan CV	145	145	145	0	51	0.351	1.00	0.00	1.00	1.00	1.00	0.000	
EVIDENCE DEPOSITORY		145	145	145	0	51							1.000	

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Ventilation Calculations for Cooling Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-clg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 3														
FCU - Evid Dep		145	145	145	0	51							1.000	
124 TELECOM ROOM	Single Fan CV	35	35	35	0	10	0.274	1.00	0.00	1.00	1.00	1.00	0.000	
TELECOM ROOM		35	35	35	0	10							1.000	
FCU - TR#1		35	35	35	0	10							1.000	
126 MECHANICAL ROOM	Single Fan CV	361	361	361	0	361	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
MECHANICAL ROOM		361	361	361	0	361							1.000	
FCU - Mech		361	361	361	0	361							1.000	

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Ventilation Calculations for Heating Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 3														
101 VISITOR WAITING AREA	PFP Reheat	57	57	57	57	34	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
VISITOR WAITING		57	57	57	57	34							0.971	
102 CORRIDOR	PFP Reheat	13	13	13	13	8	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
103 MEN	PFP Reheat	12	12	12	12	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000	
104 WOMEN	PFP Reheat	13	13	13	13	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000	
137 JANITOR	PFP Reheat	3	3	3	3	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000	
RESTROOMS		41	41	41	41	8							0.971	
105 CORRIDOR	PFP Reheat	18	18	18	18	11	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
106 MULTI-PURPOSE LOUNGE	PFP Reheat	156	156	156	156	93	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
127 CORRIDOR	PFP Reheat	16	16	16	16	10	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
MULTI-PURPOSE ROOM		190	190	190	190	114							0.971	
105A CORRIDOR	PFP Reheat	14	14	14	14	8	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
127A CORRIDOR	PFP Reheat	16	16	16	16	10	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
136 SHOWER	PFP Reheat	6	6	6	6	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000	
SHOWER		36	36	36	36	18							0.971	
107 SPECIAL AGENT IN CHARGE	PFP Reheat	28	28	28	28	17	0.594	1.00	0.30	1.00	1.00	1.00	0.977	
108 LARGE INTERVIEW ROOM	PFP Reheat	90	90	90	90	54	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
SOUTH OFFICES		118	118	118	118	70							0.971	
122 TABLE OF ORGANIZATION A	PFP Reheat	101	101	101	101	60	0.594	1.00	0.30	1.00	1.00	1.00	0.977	
123 ARMS VAULT	PFP Reheat	17	17	17	17	10	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
TOE STORAGE		118	118	118	118	70							0.971	
128 RESIDENT AGENT CRIMINAL	PFP Reheat	22	22	22	22	13	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
129 TEAM CHIEF OFFICE	PFP Reheat	23	23	23	23	14	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
130 INVESTIGATIVE OPS TECH C	PFP Reheat	24	24	24	24	14	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
131 DRUG SUPPRESSION TEAM	PFP Reheat	23	23	23	23	14	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
132 SPECIAL AGENTS OFFICE	PFP Reheat	24	24	24	24	14	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
NORTH OFFICES		117	117	117	117	70							0.971	
133 SPECIAL AGENTS OFFICE	PFP Reheat	44	44	44	44	24	0.537	1.00	0.30	1.00	1.00	1.00	1.000	
SPECIAL AGENTS OFFICE		44	44	44	44	24							1.000	
135 ADMINISTRATIVE/ OPERATIC	PFP Reheat	85	85	85	85	51	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
134 RECYCLE CLOSET	PFP Reheat	11	11	11	11	6	0.600	1.00	0.30	1.00	1.00	1.00	0.971	*
ADMIN / OPS ROOM		96	96	96	96	57							0.971	
Primary - PFP w/ Reheat		816	816	816	816	466							0.971	

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Ventilation Calculations for Heating Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 3														
109 SMALL INTERVIEW ROOM #2	PFP Reheat	32	32	32	32	19	0.591	1.00	0.30	1.00	1.00	1.00	0.994	
110 SMALL INTERVIEW ROOM #1	PFP Reheat	31	31	31	31	18	0.586	1.00	0.30	1.00	1.00	1.00	0.999	
111 PHOTO ID ROOM	PFP Reheat	13	13	13	13	8	0.600	1.00	0.30	1.00	1.00	1.00	0.985	*
118 EVIDENCE CUSTODIAN OFF	PFP Reheat	25	25	25	25	15	0.600	1.00	0.30	1.00	1.00	1.00	0.985	*
SOUTHWEST OFFICES		100	100	100	100	59							0.985	
112 POLYGRAPH OFFICE	PFP Reheat	28	28	28	28	17	0.600	1.00	0.30	1.00	1.00	1.00	0.985	*
113 POLYGRAPH EXAM ROOM	PFP Reheat	28	28	28	28	17	0.600	1.00	0.30	1.00	1.00	1.00	0.985	*
114 OBSERVATION ROOM	PFP Reheat	29	29	29	29	17	0.600	1.00	0.30	1.00	1.00	1.00	0.985	*
115 SUSPECT WAITING ROOM	PFP Reheat	48	48	48	48	29	0.600	1.00	0.30	1.00	1.00	1.00	0.985	*
117A CORRIDOR	PFP Reheat	38	38	38	38	23	0.600	1.00	0.30	1.00	1.00	1.00	0.985	*
127B CORRIDOR	PFP Reheat	34	34	34	34	21	0.600	1.00	0.30	1.00	1.00	1.00	0.985	*
116 SUSPECT TOILET	PFP Reheat	8	8	10	8	0	0.000	1.00	0.30	1.00	1.00	1.00	1.000	
CORE SUSPECT AREA		214	214	216	214	123							0.985	
117 CORRIDOR	PFP Reheat	14	14	14	14	8	0.600	1.00	0.30	1.00	1.00	1.00	0.985	*
120 EVIDENCE PROCESSING RC	PFP Reheat	24	24	24	24	15	0.600	1.00	0.30	1.00	1.00	1.00	0.985	*
EVIDENCE PROCESSING		38	38	38	38	23							0.985	
121 DUTY AGENT OFFICE	PFP Reheat	25	25	25	25	15	0.600	1.00	0.30	1.00	1.00	1.00	0.985	*
DUTY AGENT OFFICE		25	25	25	25	15							0.985	
Secondary - PFP w/ Reheat		377	377	379	377	221							0.985	
Default		0	0	0	0	0							0.000	
DUMMY		0	0	0	0	0							0.000	
001 ENTRY VESTIBULE	Single Fan CV	109	109	109	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
ENTRY VESTIBULE		109	109	109	0	0							1.000	
002 VESTIBULE WEST	Single Fan CV	49	49	49	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
VESTIBULE WEST		49	49	49	0	0							1.000	
003 VESTIBULE NORTH	Single Fan CV	28	28	28	0	0	0.000	1.00	0.00	1.00	1.00	1.00	1.000	*
VESTIBULE NORTH		28	28	28	0	0							1.000	
CUHs - Vestibules		186	186	186	0	0							1.000	
125 ELECTRICAL ROOM	Single Fan CV	207	207	207	0	207	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
ELECTRICAL ROOM		207	207	207	0	207							1.000	
FCU - Elec		207	207	207	0	207							1.000	
119 EVIDENCE DEPOSITORY RO	Single Fan CV	145	145	145	0	51	0.351	1.00	0.00	1.00	1.00	1.00	0.000	
EVIDENCE DEPOSITORY		145	145	145	0	51							1.000	

ASHRAE Standard 62.1-2004/2007

By PB

Ventilation Calculations for Heating Design

System Zone Room	Box Type	Vpz cfm	Vfan cfm	Vdz cfm	Vpz-min cfm	Voz-htg cfm	Zd	Ep	Er	Fa	Fb	Fc	Evz	
Alternative 3														
FCU - Evid Dep		145	145	145	0	51							1.000	
124 TELECOM ROOM	Single Fan CV	35	35	35	0	10	0.274	1.00	0.00	1.00	1.00	1.00	0.000	
TELECOM ROOM		35	35	35	0	10							1.000	
FCU - TR#1		35	35	35	0	10							1.000	
126 MECHANICAL ROOM	Single Fan CV	361	361	361	0	361	1.000	1.00	0.00	1.00	1.00	1.00	1.000	*
MECHANICAL ROOM		361	361	361	0	361							1.000	
FCU - Mech		361	361	361	0	361							1.000	

MONTHLY ENERGY CONSUMPTION

By PB

------- Monthly Energy Consumption -------

Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Alternative: 1	**ASHRAE 90_1-2007 Baseline**												
Electric													
On-Pk Cons. (kWh)	7,432	7,242	8,305	8,836	13,222	15,201	17,759	16,354	13,686	10,437	7,898	7,656	134,027
On-Pk Demand (kW)	22	31	33	31	46	51	56	55	50	40	37	20	56
Gas													
On-Pk Cons. (therms)	254	172	100	5	0	0	0	0	0	10	76	353	969
On-Pk Demand (therms/hr)	3	3	3	1	0	0	0	0	0	2	3	3	3

Energy Consumption

Building	65,852	Btu/(ft2-year)
Source	175,148	Btu/(ft2-year)
Floor Area	8,419	ft2

Environmental Impact Analysis

CO2	No Data Available
SO2	No Data Available
NOX	No Data Available

MONTHLY ENERGY CONSUMPTION

By PB

------- Monthly Energy Consumption -------

Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Alternative: 2	**Self Contained VAV Units w/ Clg Tower**												
Electric													
On-Pk Cons. (kWh)	8,723	8,275	9,488	9,474	11,295	12,024	13,186	12,692	11,346	10,371	9,124	8,997	124,996
On-Pk Demand (kW)	25	26	26	27	32	33	36	33	33	30	29	27	36
Gas													
On-Pk Cons. (therms)	60	26	17	6	0	0	3	3	6	13	23	58	216
On-Pk Demand (therms/hr)	1	0	0	0	0	0	0	0	0	0	0	1	1
Water													
Cons. (1000gal)	2	3	4	5	10	12	14	13	10	6	3	1	82

Energy Consumption

Building	53,239	Btu/(ft2-year)
Source	154,739	Btu/(ft2-year)
Floor Area	8,419	ft2

Environmental Impact Analysis

CO2	No Data Available
SO2	No Data Available
NOX	No Data Available

MONTHLY ENERGY CONSUMPTION

By PB

------- Monthly Energy Consumption -------

Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Alternative: 3	**VAV Fan Coil Units w/ Air Cooled Chiller**												
Electric													
On-Pk Cons. (kWh)	8,253	8,334	9,683	10,422	13,541	14,460	15,948	15,304	13,686	11,645	9,308	8,265	138,851
On-Pk Demand (kW)	27	29	29	33	38	40	43	39	39	38	37	31	43
Gas													
On-Pk Cons. (therms)	38	13	7	3	0	0	3	3	6	8	11	33	126
On-Pk Demand (therms/hr)	1	1	0	0	0	0	0	0	0	0	0	1	1

Energy Consumption

Building	57,784	Btu/(ft2-year)
Source	170,464	Btu/(ft2-year)
Floor Area	8,419	ft2

Environmental Impact Analysis

CO2	No Data Available
SO2	No Data Available
NOX	No Data Available

ENERGY CONSUMPTION SUMMARY

By PB

	Elect Cons. (kWh)	Gas Cons. (kBtu)	% of Total Building Energy	Total Building Energy (kBtu/yr)	Total Source Energy* (kBtu/yr)
Alternative 1					
Primary heating					
Primary heating		99,438	17.9 %	99,438	104,671
Other Htg Accessories			0.0 %	0	0
Heating Subtotal		**99,438**	**17.9** %	**99,438**	**104,671**
Primary cooling					
Cooling Compressor	40,142		24.7 %	137,004	411,052
Tower/Cond Fans	2,814		1.7 %	9,604	28,814
Condenser Pump			0.0 %	0	0
Other Clg Accessories	343		0.2 %	1,170	3,511
Cooling Subtotal....	**43,299**		**26.6** %	**147,778**	**443,378**
Auxiliary					
Supply Fans	23,770		14.6 %	81,126	243,401
Pumps			0.0 %	0	0
Stand-alone Base Utilities			0.0 %	0	0
Aux Subtotal....	23,770		14.6 %	81,126	243,401
Lighting					
Lighting	38,244		23.5 %	130,526	391,618
Receptacle					
Receptacles	28,176		17.3 %	96,165	288,522
Cogeneration					
Cogeneration			0.0 %	0	0
Totals					
Totals**	**133,488**	**99,438**	**100.0** %	**555,032**	**1,471,591**

* Note: Resource Utilization factors are included in the Total Source Energy value.

** Note: This report can display a maximum of 7 utilities. If additional utilities are used, they will be included in the total.

ENERGY CONSUMPTION SUMMARY

By PB

	Elect Cons. (kWh)	Gas Cons. (kBtu)	Water Cons. (1000 gals)	% of Total Building Energy	Total Building Energy (kBtu/yr)	Total Source Energy* (kBtu/yr)
Alternative 2						
Primary heating						
Primary heating		21,581		4.8 %	21,581	22,717
Other Htg Accessories	2,186			1.7 %	7,459	22,380
Heating Subtotal	**2,186**	**21,581**		**6.5** %	**29,041**	**45,097**
Primary cooling						
Cooling Compressor	22,470			17.1 %	76,692	230,098
Tower/Cond Fans	3,462		82	2.6 %	11,815	35,450
Condenser Pump				0.0 %	0	0
Other Clg Accessories	5,639			4.3 %	19,247	57,747
Cooling Subtotal....	**31,572**		**82**	**24.0** %	**107,754**	**323,294**
Auxiliary						
Supply Fans	4,409			3.4 %	15,047	45,147
Pumps				0.0 %	0	0
Stand-alone Base Utilities	30,036			22.9 %	102,512	307,568
Aux Subtotal....	34,445			26.2 %	117,560	352,715
Lighting						
Lighting	28,618			21.8 %	97,673	293,050
Receptacle						
Receptacles	28,176			21.5 %	96,165	288,522
Cogeneration						
Cogeneration				0.0 %	0	0
Totals						
Totals**	**124,996**	**21,581**	**82**	**100.0** %	**448,192**	**1,302,678**

* Note: Resource Utilization factors are included in the Total Source Energy value.

** Note: This report can display a maximum of 7 utilities. If additional utilities are used, they will be included in the total.

ENERGY CONSUMPTION SUMMARY

By PB

	Elect Cons. (kWh)	Gas Cons. (kBtu)	% of Total Building Energy	Total Building Energy (kBtu/yr)	Total Source Energy* (kBtu/yr)
Alternative 3					
Primary heating					
Primary heating		12,561	2.6 %	12,561	13,223
Other Htg Accessories	886		0.6 %	3,025	9,075
Heating Subtotal	**886**	**12,561**	**3.2** %	**15,586**	**22,297**
Primary cooling					
Cooling Compressor	32,023		22.5 %	109,294	327,915
Tower/Cond Fans	2,072		1.5 %	7,071	21,215
Condenser Pump			0.0 %	0	0
Other Clg Accessories	1,614		1.1 %	5,509	16,529
Cooling Subtotal....	**35,709**		**25.1** %	**121,874**	**365,659**
Auxiliary					
Supply Fans	4,127		2.9 %	14,086	42,263
Pumps	11,299		7.9 %	38,563	115,700
Stand-alone Base Utilities	30,036		21.1 %	102,512	307,568
Aux Subtotal....	45,462		31.9 %	155,162	465,531
Lighting					
Lighting	28,618		20.1 %	97,673	293,050
Receptacle					
Receptacles	28,176		19.8 %	96,165	288,522
Cogeneration					
Cogeneration			0.0 %	0	0
Totals					
Totals**	**138,851**	**12,561**	**100.0** %	**486,460**	**1,435,060**

* Note: Resource Utilization factors are included in the Total Source Energy value.

** Note: This report can display a maximum of 7 utilities. If additional utilities are used, they will be included in the total.

Location	
Building owner	
Program user	
Company	
Comments	

By	**PBHA**
Dataset name	**C:\Users\agebrehana\Ft Stewart.trc**

Calculation time	**03:44 PM on 06/05/2012**	
TRACE® 700 version	**6.2.8**	
Location	**Fort Stewart, Georgia**	
Latitude	**32.0**	**deg**
Longitude	**81.5**	**deg**
Time Zone	**5**	
Elevation	**88**	**ft**
Barometric pressure	**29.8**	**in. Hg**
Air density	**0.0758**	**lb/cu ft**
Air specific heat	**0.2444**	**Btu/lb·°F**
Density-specific heat product	**1.1117**	**Btu/h·cfm·°F**
Latent heat factor	**4,893.6**	**Btu·min/h·cu ft**
Enthalpy factor	**4.5480**	**lb·min/hr·cu ft**
Summer design dry bulb	**93**	**°F**
Summer design wet bulb	**79**	**°F**
Winter design dry bulb	**26**	**°F**
Summer clearness number	**0.90**	
Winter clearness number	**0.90**	
Summer ground reflectance	**0.20**	
Winter ground reflectance	**0.20**	
Carbon Dioxide Level	**400**	**ppm**
Design simulation period	**January - December**	
Cooling load methodology	**TETD-TA1**	
Heating load methodology	**UATD**	

System Checksums

By PBHA

System - 001 **Ventilation and Heating**

COOLING COIL PEAK

Peaked at Time: Mo/Hr: 0 / 0
Outside Air: OADB/WB/HR: 0 / 0 / 0

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)
Envelope Loads				
Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0
Roof Cond	0	0	0	0
Glass Solar	0	0	0	0
Glass/Door Cond	0	0	0	0
Wall Cond	0	0	0	0
Partition/Door	0		0	0
Floor	0		0	0
Adjacent Floor	0	0	0	0
Infiltration	0		0	0
Sub Total ==>	0	0	0	0
Internal Loads				
Lights	0	0	0	0
People	0	0	0	0
Misc	0	0	0	0
Sub Total ==>	0	0	0	0
Ceiling Load	0	0	0	0
Ventilation Load	0	0	0	0
Adj Air Trans Heat	0		0	0
Dehumid. Ov Sizing			0	0
Ov/Undr Sizing	0		0	0
Exhaust Heat		0	0	0
Sup. Fan Heat			0	0
Ret. Fan Heat		0	0	0
Duct Heat Pkup		0	0	0
Underflr Sup Ht Pkup			0	0
Supply Air Leakage		0	0	0
Grand Total ==>	0	0	0	100.00

CLG SPACE PEAK

Mo/Hr: 0 / 0
OADB: 0

	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads		
Skylite Solar	0	0
Skylite Cond	0	0
Roof Cond	0	0
Glass Solar	0	0
Glass/Door Cond	0	0
Wall Cond	0	0
Partition/Door	0	0
Floor	0	0
Adjacent Floor	0	0
Infiltration	0	0
Sub Total ==>	0	0
Internal Loads		
Lights	0	0
People	0	0
Misc	0	0
Sub Total ==>	0	0
Ceiling Load	0	0
Ventilation Load	0	0
Adj Air Trans Heat	0	0
Ov/Undr Sizing	0	0
Grand Total ==>	0	100.00

HEATING COIL PEAK

Mo/Hr: Heating Design
OADB: 26

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	-1,959	-1,959	15.19
Glass Solar	0	0	0.00
Glass/Door Cond	-1,175	-1,175	9.11
Wall Cond	-2,849	-2,849	22.10
Partition/Door	0	0	0.00
Floor	-2,376	-2,376	18.43
Adjacent Floor	0	0	0
Infiltration	-2,790	-2,790	21.64
Sub Total ==>	-11,148	-11,148	86.47
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	0	0	0.00
Ventilation Load	0	-1,744	13.53
Adj Air Trans Heat	0	0	0
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		0	0.00
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-11,148	-12,892	100.00

TEMPERATURES

	Cooling	Heating
SADB	0.0	125.0
Ra Plenum	0.0	70.0
Return	0.0	70.0
Ret/OA	0.0	61.4
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	0	182
Terminal	0	182
Main Fan	0	182
Sec Fan	0	0
Nom Vent	0	36
AHU Vent	0	36
Infil	0	57
MinStop/Rh	0	0
Return	0	239
Exhaust	0	93
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	0.0	19.6
cfm/ft²	0.00	0.26
cfm/ton	0.00	
ft²/ton	0.00	
Btu/hr·ft²	0.00	-18.08
No. People	0	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB °F	Enter WB °F	Enter HR gr/lb	Leave DB °F	Leave WB °F	Leave HR gr/lb
Main Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0								

AREAS

	Gross Total	Glass ft²	Glass (%)
Floor	713		
Part	0		
Int Door	0		
ExFlr	108		
Roof	713	0	0
Wall	1,853	0	0
Ext Door	131	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-12.9	182	61.4	125.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-12.9			

APPENDIX F

ANSI/ASHRAE STANDARD 189.1 COMPLIANCE

CORRECTED FINAL SUBMISSION
12 SEPTEMBER 2012

Indoor Environmental Quality (IEQ) Compliance Documentation – Mandatory

Project Name: U.S. Army Criminal Investigations Command--RA 5-9	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
§8.3.1: Indoor Air Quality			
❑	❑	§8.3.1: The building complies with Section 4 of ANSI/ASHRAE Standard 62.1. Provide ANSI/ASHRAE Standard 62.1-2007 Appendix H checklist to document compliance with Section 4.3 requirements.	
❑	❑	§8.3.1: The building complies with Section 5 of ANSI/ASHRAE Standard 62.1 except as noted below. When a requirement is provided below, it supersedes the requirement in ANSI/ASHRAE Standard 62.1. Provide ANSI/ASHRAE Standard 62.1-2007 Appendix H checklist to document Section 5.2.3 requirements.	
❑	❑	§8.3.1.3a1: The particulate matter filters or air cleaners have a MERV of not less than 8, and comply with and are provided where required in Section 5.9 of ANSI/ASHRAE Standard 62.1. (Include document reference for specifications.)	Not provided at this level of detail.
❑	❑	§8.3.1.4a: Smoking is not allowed inside the building.	Sheet A-703; Sign is provided, but location is not indicated at this level of detail.
❑	❑	§8.3.1.4a: Signs stating that smoking is not allowed inside the building have been posted within 10 ft (3 m) of each building entrance.	Sheet A-703; Sign is provided, but location is not indicated at this level of detail.
❑	❑	§8.3.1.4b: Any exterior designated smoking areas are located a minimum of 25 ft (7.5 m) away from building entrances, outdoor air intakes, and operable windows.	Not provided at this level of detail.
❑	❑	§8.3.1: The building complies with Section 6 of ANSI/ASHRAE Standard 62.1 except as noted below. When a requirement is provided below, it supersedes the requirement in ANSI/ASHRAE Standard 62.1. Provide ANSI/ASHRAE Standard 62.1-2007 Appendix H checklist to document Section 6.2 compliance.	
❑	❑	§8.3.1.1a: The Ventilation Rate Procedure of ANSI/ASHRAE Standard 62.1 was used to design each mechanical ventilation system in the building.	Design Narrative; Appendix E: Energy Modeling; ASHRAE Standard 62.1-2004/2007.
❑	❑	§8.3.1.3a1: (PM_{10}) The building is located in an area designated as the following (Attainment or Non-attainment) under the National Ambient Air Quality Standards for PM_{10}, as determined by the AHJ: **Status (If 8.3.1.3a1 applies, PM_{10}):** ❑ Attainment ❑ Non-attainment ❑ Particulate matter filters and air cleaning devices with MERVs of not less than 8 have been provided to clean the air at any location prior to its introduction to occupied space, as required in Section 6.2.1.1 of ANSI/ASHRAE Standard 62.1. (Include document reference for specifications.)	**Source of Information**
❑	❑	§8.3.1.3a2: (PM2.5) The building is located in an area designated as the following under the National Ambient Air Quality Standards for PM2.5, as determined by the AHJ: **Status (If 8.3.1.3a2 applies, PM2.5):** ❑ Attainment ❑ Non-attainment ❑ Particulate matter filters and air-cleaning devices with MERVs of not less than 13 have been provided to clean the air at any location prior to its introduction to occupied space, as required in Section 6.2.1.1 of ANSI/ASHRAE Standard 62.1. (Include document reference for specifications.)	**Source of Information**

Indoor Environmental Quality (IEQ) Compliance Documentation – Mandatory

Project Name: U.S. Army Criminal Investigations Command--RA 5-9	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
§8.3.1: Indoor Air Quality Cont.			
❑	❑	§8.3.1.3b: (Ozone) The building is located in an area designated as the following under the National Ambient Air Quality Standards for ozone as determined by the AHJ: **Status (If 8.3.1.3b applies, Ozone):** ❑ Attainment ❑ Non-attainment ❑ Air cleaning devices with a volumetric ozone removal efficiencies of not less than 40% have been provided to clean the air at any location prior to its introduction to occupied space, as required in Section 6.2.1.1 of ANSI/ASHRAE Standard 62.1. (Include document reference for specifications.)	**Source of Information**
❑	❑	§8.3.1.3c: All filter frames, air cleaner racks, access doors, and air cleaner cartridges are sealed. (Include document reference for specifications.)	Not provided at this level of detail.
❑	❑	§8.3.1: The building complies with Section 7 of ANSI/ASHRAE Standard 62.1.	
❑	❑	§8.3.1.2.1: A permanently mounted, direct total outdoor airflow measurement device has been provided that is capable of measuring the system outdoor airflow rate within an accuracy of ±15% of the minimum outdoor airflow rate. It is also capable of sending an alarm to the building operator or a signal to a building central monitoring system when flow rates are not in compliance. ❑ Exception §8.3.1.2.1: Constant volume air supply systems that use a damper position feedback system are not required to have a direct total outdoor airflow measurement device.	Not provided at this level of detail.
❑	❑	1) West-facing façade shading PF: 0.62	A-604; vestibules indicate a walk-off-mat system with an absorption and finishing surface in the entry vestibules. Scraper surfaces shall be applied outside the first entry door per ASHRAE 189.1-2009, 8.3.1.5.1 *Scraper Surface* requirements.
❑	❑	§8.3.1.5: Each scraper surface, absorption surface, and finishing surface is as wide as the entry opening, and has a minimum length of 10 ft, measured in the primary direction of travel. Exceptions §8.3.1.5: ❑ 1) Entrances to individual dwelling units. ❑ 2) Length of entry mat surfaces is allowed to be reduced due to a barrier, such as a counter, artition, or wall, or local regulations prohibiting the use of scraper surfaces outside the entry. In this case entry mat surfaces have a minimum length of 3 ft (1 m) of indoor surface, with a minimum combined length of 6 ft (2 m).	Not provided at this level of detail.
❑	❑	2) South-facing façade shading PF: 0.62	Not provided at this level of detail.
❑	❑	§8.3.1.5.1b: The scraper surface is either immediately outside or inside the entry.	Not provided at this level of detail.
❑	❑	§8.3.1.5.1c: The scraper surface is a minimum of 3 ft (1 m) long.	Not provided at this level of detail.
❑	❑	3) East-facing façade shading PF: 0.62	Not provided at this level of detail.
❑	❑	§8.3.1.5.2a: The absorption surface is the second surface stepped on when entering the building.	Not provided at this level of detail.

Indoor Environmental Quality (IEQ) Compliance Documentation – Mandatory

Project Name: U.S. Army Criminal Investigations Command--RA 5-9	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
❑	❑	§8.3.1.5.2b: The absorption surface is a minimum of 3 ft (1 m) long, and made from materials that can perform both a scraping action and a moisture wicking action.	Not provided at this level of detail.
❑	❑	§8.3.1.5.3a: The finishing surface is the third surface stepped on when entering the building.	Not provided at this level of detail.
❑	❑	§8.3.1.5.3b: The finishing surface is a minimum of 4 ft (1.2 m) long, and made from material that will both capture and hold any remaining particles or moisture.	Not provided at this level of detail.

Indoor Environmental Quality (IEQ) Compliance Documentation – Mandatory

Project Name: U.S. Army Criminal Investigations Command--RA 5-9	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
§8.3.2: Thermal Environmental Conditions for Human Occupancy			
❑	❑	§8.3.2: The building has been designed in compliance with ANSI/ASHRAE Standard 55, Sections 6.1, "Design," and 6.2, "Documentation of ANSI/ASHRAE Standard 55." Provide ANSI/ASHRAE Standard 55 compliance form (Addendum H) to document compliance with section 6.2.	
		❑ Exception §8.3.2: Spaces with special requirements for processes, activities, or contents that require a thermal environment outside that which humans find thermally acceptable, such as food storage, natatoriums, shower rooms, saunas, and drying rooms.	
§8.3.3: Acoustical Control			
❑	❑	§8.3.3.1: Wall and roof-ceiling assemblies that are part of the building envelope have a composite OITC rating of 40 or greater or a composite STC rating of 50 or greater for any of the following conditions: a. Buildings within 1000 ft (300 m) of expressways. b. Buildings within 5 mi (8 km) of airports serving more than 10,000 commercial jets per year. c. Where yearly average day-night average sound levels at the property line exceed 65 decibels	
		Composite STC or OITC rating of wall and roof-ceiling assemblies that are part of the building envelope:	
❑	❑	§8.3.3.1: Fenestration that is part of the building envelope shall have an OITC or STC rating of 30 or greater for any of the following conditions: a. Buildings within 1000 ft (300 m) of expressways. b. Buildings within 5 mi (8 km) of airports serving more than 10,000 commercial jets per year. c. Where yearly average day-night average sound levels at the property line exceed 65 decibels.	
		Composite STC or OITC rating of fenestration that are part of the building envelope:	
		❑ Exception §8.3.3.1: Buildings that may have to adhere to functional and operational requirements such as factories, stadiums, storage, enclosed parking structure, and utility	
✓	❑	§8.3.3.2: Interior wall and floor/ceiling assemblies separating interior rooms and spaces have been designed in accordance with all of the following: a. Wall and floor/ceiling assemblies separating adjacent dwelling units, dwelling units and public spaces, adjacent tenant spaces, tenant spaces and public places, and adjacent classrooms have a composite STC rating of 50 or greater. b. Wall and floor/ceiling assemblies separating hotel rooms, motel rooms, and patient rooms in nursing homes and hospitals have a composite STC rating of 45 or greater. c. Wall and floor/ceiling assemblies separating classrooms from restrooms and showers have a composite STC rating of 53 or greater. d. Wall and floor/ceiling assemblies separating classrooms from music rooms, mechanical rooms, cafeteria, gymnasiums, and indoor swimming pools have a composite STC rating of 60 or greater.	Wall types are labeled on A-101. Wall type sound ratings are listed on A-601.
✓		Composite STC rating of wall and floor/ceiling assemblies separating adjacent dwelling units, dwelling units and public spaces, adjacent tenant spaces, tenant spaces and public places, and adjacent classrooms: (Attach additional table if necessary.)	Wall types are labeled on A-101. Wall type sound ratings are listed on A-601.

Indoor Environmental Quality (IEQ) Compliance Documentation – Mandatory

Project Name: U.S. Army Criminal Investigations Command--RA 5-9	
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Contact Person:	Telephone:
City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
	✓	Composite STC rating of wall and floor/ceiling assemblies separating hotel rooms, motel rooms, and patient rooms in nursing homes and hospitals: (Attach additional table if necessary.)	
✓		Composite STC rating of wall and floor-ceiling assemblies separating classrooms from restrooms and showers: (Attach additional table if necessary.)	Wall types are labeled on A-101. Wall type sound ratings are listed on A-601.
✓		Composite STC rating of wall and floor/ceiling assemblies separating classrooms from music rooms, mechanical rooms, cafeteria, gymnasiums, and indoor swimming pools: (Attach additional table if necessary.)	Wall types are labeled on A-101. Wall type sound ratings are listed on A-601.

Indoor Environmental Quality (IEQ) Compliance Documentation – Mandatory

Project Name: U.S. Army Criminal Investigations Command--RA 5-9	
Project Address:	Date: 12 September 2012
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Contact Person:	Telephone:
City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
§8.3.3: Acoustical Control Cont.			
❑	❑	§8.3.3.3: OITC values for assemblies and components have been determined in accordance with ASTM E1332. STC values for assemblies and components have been determined in accordance with ASTM E90 and ASTM E413.	
§8.3.4: Daylighting by Toplighting			
❑	✓	§8.3.4: In buildings three stories or less above grade, conditioned or unconditioned enclosed spaces that are greater than 20,000 ft^2 (2000 m^2) and directly under a roof with finished ceiling heights greater than 15 ft (4 m), and that have a lighting power allowance for general lighting equal to or greater than 0.5 W/ft^2 (5.5 W/m^2), there is a minimum fenestration area providing daylighting by toplighting for large enclosed spaces. Exceptions §8.3.4: ❑ 1) Buildings in climate zones 7 or 8. ❑ 2) Auditoria, theaters, museums, places of worship, and refrigerated warehouses.	
❑	✓	§8.3.4.1: In buildings specified in §8.3.4, a minimum of 50% of the floor area directly under a roof in spaces with a lighting power density or lighting power allowance greater than 0.5 W/ft2 (5.5 W/m2) are in the daylight area.	
❑	✓	§8.3.4.1: In buildings specified in §8.3.4, areas that are daylit have a minimum toplighting area to daylight area ratio as shown in Table 8.3.4.1. For purposes of compliance with Table 8.3.4.1, the greater of the space lighting power density and the space lighting power allowance has been used.	
❑	✓	§8.3.4.2: In buildings specified in §8.3.4, skylights used to comply with Section 8.3.4.1 have a glazing material or diffuser that has a measured haze value greater than 90%, tested according to ASTM D1003 (notwithstanding its scope) or other test method approved by the [illegible] Exceptions §8.3.4.2: ❑ 1) Skylights with a measured haze value less than or equal to 90% whose combined area does not exceed 5% of the total skylight area. ❑ 2) Tubular daylighting devices with a diffuser. ❑ 3) Skylights that are capable of preventing direct sunlight from entering the occupied space below the well during occupied hours. This shall be accomplished using one or more of the following: a. orientation b. automated shading or diffusing devices c. diffusers d. fixed internal or external baffles ❑ 4) Skylights in airline terminals, convention centers, and shopping malls.	
§8.3.5: Isolation of the Building from Pollutants in Soil			

Indoor Environmental Quality (IEQ) Compliance Documentation – Mandatory

Project Name: U.S. Army Criminal Investigations Command--RA 5-9	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
❑	❑	§8.3.5: Building projects that include construction or expansion of a ground-level foundation and that are located on brownfield sites or in "zone 1" counties for radon (those identified to have a significant probability of radon concentrations higher than 4 picocuries/liter on the EPA map of radon zones) have a soil gas retarding system installed between the newly constructed space and the soil. **Status (If 8.3.5 applies, Radon):** ❑ Brownfield site ❑ Building has a soil gas retarding system installed between the newly constructed space and the soil. (Include document reference for specifications.) ❑ Radon county in zone 1 ❑ Building has a soil gas retarding system installed between the newly constructed space and the soil. (Include document reference for specifications.)	**Source of Information**

The proposed and baseline buildings comply with the mandatory requirements of ANSI/ASHRAE/USGBC/IES Standard 189.1-2009. Individual certifying authenticity of the data provided in this analysis:

Signature: Date:	
Printed Name: License/Registration #:	
Company Name:	

Indoor Environmental Quality (IEQ) Compliance Documentation – Prescriptive

Project Name: U.S. Army Criminal Investigations Command--RA 5-9	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
§8.4.1: Daylighting by Sidelighting			
✓	❑	§8.4.1.1a: For office spaces and classrooms, all north-, south-, and east-facing facades have a minimum sidelighting effective aperture as prescribed in Table 8.4.1.1.	
		North-side facade sidelighting effective aperture: 0.167	173133A_CIC_Det5-9_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1a Part 1/2
		South-side façade sidelighting effective aperture: 0.232	173133A_CIC_Det5-9_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1a Part 1/2
		East-side facade sidelighting effective aperture: 0.210	173133A_CIC_Det5-9_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1a Part 1/2
✓	❑	§8.4.1.1b: For office spaces and classrooms, the combined width of the primary sidelighted areas is at least 75% of the length of the facade wall.	
		North-side combined width of the primary sidelighted areas: 48'-0"	173133A_CIC_Det5-9_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1b Part 1
		North-side length of the wall: 66'-3 5/8"	173133A_CIC_Det5-9_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1b Part 2
		South-side combined width of the primary sidelighted areas: 31'-3 7/8"	173133A_CIC_Det5-9_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1b Part 1
		South-side length of the wall: 41'-3 1/4"	173133A_CIC_Det5-9_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1b Part 2
		East-side combined width of the primary sidelighted areas: 24'-0"	173133A_CIC_Det5-9_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1b Part 1
		East-side length of the wall: 32'-10 3/4"	173133A_CIC_Det5-9_Architectural.rvt, Schedule: ASHRAE 189.1-2009, 8.4.1.1b Part 2
❑	❑	§8.4.1.1c: Opaque interior surfaces of office spaces and classrooms in daylight areas have visible light reflectances greater than or equal to 80% for ceilings and 70% for partitions higher than 60 in. (1.54 m) in daylight areas.	
		Visible light reflectances of opaque interior ceiling surfaces:	Not provided at this level of detail.
		Visible light reflectances of opaque interior partitions higher than 60 in. (1.54 m):	Not provided at this level of detail.
		Exceptions §8.4.1.1: ❑ 1) Spaces with programming that requires dark conditions (e.g., photographic processing). ❑ 2) Spaces with toplighting in compliance with Section 8.3.4. ❑ 3) Daylight zones where the height of existing adjacent structures above the window is at least twice the distance between the window and the adjacent structures, measured from the top of the glazing.	
✓	❑	§8.4.1.2: Each west-, south-, and east-facing façade of office spaces, has been designed with a shading projection whose PF is not less than 0.5.	
		1) West-facing façade shading PF: 0.62	Design Analysis, Appendix F: ANSI/ASHRAE Standard 189.1 Compliance
		or	
		1) West-facing façade shading interior PF:	
		2) South-facing façade shading PF: 0.62	Design Analysis, Appendix F: ANSI/ASHRAE Standard 189.1 Compliance
		or	
		2) South-facing façade shading interior PF:	

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Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
		3) East-facing façade shading PF: 0.62 or 3) East-facing façade shading interior PF:	Design Analysis, Appendix F: ANSI/ASHRAE Standard 189.1 Compliance
✓	❑	§8.4.1.2a and b: Office spaces use one or more of the following shading devices: a. Louvers, sun shades, light shelves, and any other permanent device. b. Building self-shading through roof overhangs or recessed windows.	

Indoor Environmental Quality (IEQ) Compliance Documentation – Prescriptive

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City:	

Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
§8.4.1: Daylighting by Sidelighting Cont.			
❑	✓	§8.4.1.2a: A vertical fenestration that employs a combination of interior and external shading has been separated into multiple segments for compliance purposes. Each segment complies with the requirements for either external or interior PF. Attach additional sheets following a format similar to below: Segment A: 1) West-facing façade shading PF: Segment B: 1) West-facing façade shading interior PF: Segment C: 1) West-facing façade shading interior PF: Segment D: 2) South-facing façade shading PF: Segment E: 2) South-facing façade shading interior PF:	
		Exceptions §8.4.1.2: ❑ 1) Translucent panels and glazing systems with a measured haze value greater than 90%, tested according to ASTM D1003 (notwithstanding its scope) or other test method approved by the AHJ, and that are entirely 8 ft (2.5 m) above the floor, do not require external shading devices. ❑ 2) Vertical fenestration that receives direct solar radiation for less than 250 hours per year because of shading by permanent external buildings, existing permanent infrastructure, or topography.	
§8.4.2: Materials			
❑	❑	§8.4.2: Reported emissions or VOC contents of materials specified below are from a representative product sample and conducted with each product reformulation or at a minimum every three years.	Not provided at this level of detail.
❑	❑	§8.4.2: Products certified under third-party certification programs as meeting the specific emission or VOC content requirements listed below are exempted from this three-year testing requirement but shall meet all the other requirements listed below.	Not provided at this level of detail.
		§8.4.2.1: Adhesives and Sealants	
❑	❑	§8.4.2.1: All adhesives and sealants used on the interior of the building (defined as inside of the weatherproofing system and applied on site) comply with the requirements of either Section 8.4.2.1.1 or 8.4.2.1.2. (Include document reference to specifications.)	Not provided at this level of detail.
❑	❑	§8.4.2.1.1: Emissions of adhesives and sealants have been determined according to CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350) and comply with the limit requirements for either office or classroom spaces, regardless of the space type. (Attach a separate summary sheet and insert document reference.)	Not provided at this level of detail.

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Project Name: U.S. Army Criminal Investigations Command--RA 5-9	
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Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
§8.4.2: Materials Cont.			
❑	❑	§8.4.2.1.2: VOC content complies with and has be determined according to the following limit requirements: (Attach a separate summary sheet and insert document reference.) a. Adhesives, sealants and sealant primers: SCAQMD Rule 1168. HVAC duct sealants have been classified as "Other" category within the SCAQMD Rule 1168 sealants table. b. Aerosol adhesives: Green Seal Standard GS-36.	Not provided at this level of detail.
		Exceptions §8.4.2.1: Not required to meet the emissions or the VOC content requirements: ❑ 1) Cleaners, solvent cements, and primers used with plastic piping and conduit in plumbing, fire suppression, and electrical systems. ❑ 2) HVAC air duct sealants when the air temperature of the space in which they are applied is less than 40°F (4.5°C).	Not provided at this level of detail.
		§8.4.2.2: Paints and Coatings	
❑	❑	§8.4.2.2: Paints and coatings used on the interior of the building (defined as inside of the weatherproofing system and applied on site) comply with either Section 8.4.2.2.1 or 8.4.2.2.2. (Include document reference to specifications.)	Not provided at this level of detail.
❑	❑	§8.4.2.2.1: Emissions of paints and coatings have been determined according to CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350) and comply with the limit requirements for either office or classroom spaces, regardless of the space type. (Attach a separate summary sheet and insert document reference.)	Not provided at this level of detail.
		or	
❑	❑	§8.4.2.2.2: VOC content complies with and has be determined according to the following limit requirements: (Attach a separate summary sheet and insert document reference.) a. Architectural paints, coatings, and primers applied to interior surfaces: Green Seal Standard GS-11. b. Clear wood finishes, floor coatings, stains, sealers, and shellacs: SCAQMD Rule 1113.	Not provided at this level of detail.
		§8.4.2.3: Floor Covering Materials	
❑	❑	§8.4.2.3a: Carpet has been tested in accordance with and shown to be compliant with the requirements of CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350). Products that have been verified and labeled to be in compliance with Section 9 of the CA/DHS/EHLB/R-174 comply with this requirement. (Include document reference to specifications. Attach a separate summary sheet and insert document reference.)	Not provided at this level of detail.
❑	❑	§8.4.2.3b: Hard surface flooring in office spaces and classrooms has been tested in accordance with and shown to be compliant with the requirements of CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350). (Include document reference to	Not provided at this level of detail.
		§8.4.2.4: Composite Wood, Wood Structural Panel, and Agrifiber Products	
❑	❑	§8.4.2.4: All composite wood, wood structural panel, and agrifiber products contain no added urea-formaldehyde resins. (Include document reference to specifications. Attach a separate summary sheet and insert document reference.)	Not provided at this level of detail.

Indoor Environmental Quality (IEQ) Compliance Documentation – Prescriptive

Project Name: U.S. Army Criminal Investigations Command--RA 5-9	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
❑	❑	§8.4.2.4: All laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies contain no added urea-formaldehyde resins. (Include document reference to specifications. Attach a separate summary sheet and insert document reference.)	Not provided at this level of detail.

Indoor Environmental Quality (IEQ) Compliance Documentation – Prescriptive

Project Name: U.S. Army Criminal Investigations Command--RA 5-9	
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Contact Person:	Telephone:
City:	

Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
§8.4.2: Materials Cont.			
❑	❑	§8.4.2.4: If the no-added-urea-formaldehyde requirement cannot be met for a specific product (noted below), the project complies with one of the following (attach additional sheets if necessary):	Not provided at this level of detail.
		Name of product, manufacturer and supplier:	
		❑ California Air Resource Board's (CARB) regulation "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products," as shown through third-party certification approved by CARB. ❑ CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350) and shall comply with the limit requirements for either office or classroom spaces regardless of the space type.	
		❑ Exception §8.4.2.4: Structural panel components such as plywood, particle board, wafer board, and oriented strand board identified as "EXPOSURE 1," "EXTERIOR," or "HUD-APPROVED" are considered acceptable for interior use.	
		§8.4.2.5: Office Furniture Systems and Seating	
❑	❑	§8.4.2.5: All office furniture systems and seating installed prior to occupancy have been tested according to ANSI/BIFMA Standard M7.1.	Not provided at this level of detail.
❑	❑	§8.4.2.5: At least 95% of total number of installed office workstations and 95% of total number of seating units installed meet either the emissions concentration limits in Standard M7.1's Table E1.1 or the emission factors in Table E1.2.	Not provided at this level of detail.
❑	❑	§8.4.2.5: At least 50% of the total number of installed office workstations and 50% of the total number of seating units installed meet the VOC concentration limits of Table E1.3.	Not provided at this level of detail.
		§8.4.2.6: Ceiling and Wall Systems	
❑	❑	§8.4.2.6: Emissions of all ceiling and wall systems have been determined according to CA/DHS/EHLB/R-174 (commonly referred to as California Section 01350) and comply with the limit requirements for either office or classroom spaces regardless of the space type. (Include document reference to specifications. Attach a separate summary sheet and insert document reference.)	Not provided at this level of detail.

The proposed and baseline buildings comply with the mandatory requirements of ANSI/ASHRAE/USGBC/IES Standard 189.1-2009 and meet the Prescriptive Option requirements. Individual certifying authenticity of the data provided in this analysis:

Signature: Date:	
Printed Name: License/Registration #:	
Company Name:	

Energy Efficiency Compliance Documentation – Mandatory

Project Name: U.S. Army Criminal Investigations Command--Battalion Headquarters	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Mandatory Provisions

Complies	Not applicable	Requirement	Document Reference
§7.3.1: General			
❑	❑	§7.3.1: The building project has been designed to comply with Sections 5.4, 6.4, 7.4, 8.4, 9.4, and 10.4 of ANSI/ASHRAE/IESNA Standard 90.1.	
§7.3.2: On-Site Renewable Energy Systems			
❑	❑	§7.3.2: The building project provides for the future installation of on-site renewable energy systems with a minimum rating of 3.7 W/ft^2 or 13 Btu/h·ft^2 (40 W/m^2) multiplied by the total roof area in ft^2 (m^2).	
❑	❑	§7.3.2: The building project design shows allocated space and pathways for installation of on-site renewable energy systems and associated infrastructure. ❑ Exception: The building project has an annual daily average incident solar radiation (available to a flat plate collector oriented due south at an angle from horizontal equal to the latitude of the collector location) of less than 4.0 kW/m^2·day, accounting for existing buildings, permanent infrastructure that is not part of the building project, topography, or trees.	
§7.3.3: Energy Consumption Management			
❑	❑	§7.3.3.1: Measurement devices with remote communication capability have been provided to collect energy consumption data for each energy supply source to the building (including gas, electricity, and district energy) that exceeds the thresholds listed in Table 7.3.3.1A. Measurement devices have the capability to automatically communicate energy consumption data to a data acquisition system.	Not provided at this level of detail.
❑	❑	§7.3.3.1: For all buildings that exceed the thresholds in Table 7.3.3.1A, measurement devices with remote capability (including current sensors or flow meters) have been provided to measure energy consumption data of each subsystem for each use category that exceeds the thresholds listed in Table 7.3.3.1B. Measurement devices have the capability to automatically communicate energy consumption data to a data acquisition system.	Not provided at this level of detail.
❑	❑	§7.3.3.2: All building measurement devices have been configured to automatically communicate energy data to the data acquisition system.	Not provided at this level of detail.
❑	❑	§7.3.3.2: All building measurement devices provide daily data and record hourly energy profiles. The hourly energy profiles are capable of being used to assess building performance at least monthly.	Not provided at this level of detail.
❑	❑	§7.3.3.3: The data acquisition system is capable of electronically storing the data from the measurement devices and other sensing devices for a minimum of 36 months, and creating user reports showing hourly, daily, monthly, and annual energy consumption. ❑ Exception: Portions of buildings used as residential.	Not provided at this level of detail.

The proposed and baseline buildings comply with the mandatory requirements of ANSI/ASHRAE/USGBC/IES Standard 189.1-2009. Individual certifying authenticity of the data provided in this analysis:

Signature: Date:	
Printed Name: License/Registration #:	
Company Name:	

Energy Efficiency Compliance Documentation – Prescriptive

Project Name: U.S. Army Criminal Investigations Command--Battalion Headquarters	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
§7.4.1: General			
❑	❑	§7.4.1: When a requirement is provided below, it supersedes the requirement in ANSI/ASHRAE/IESNA Standard 90.1. For all other criteria, the building project complies with the requirements of ANSI/ASHRAE/IESNA Standard 90.1.	
§7.4.1.1: On-Site Renewable Energy Systems			
✓	❑	§7.4.1.1: The building project contains on-site renewable energy systems that together provide annual energy production equivalent to not less than 6.0 KBtu/ft^2 (20 kWh/m^2) of conditioned space. ❑ Exception: The building demonstrates compliance with both of the following and is not required to have an on-site renewable energy system: 1. An annual daily average incident solar radiation available to a flat plate collector oriented due south at an angle from horizontal equal to the latitude of the collector location of less than 4.0 kW/m^2·day, accounting for existing buildings, permanent infrastructure that is not part of the building project, topography, and trees. 2. Purchase of renewable electricity products complying with the Green-e Energy National Standard for Renewable Electricity Products of at least 7 kWh/ft^2 (75 kWh/m^2) of conditioned space each year until the cumulative purchase totals 70 kWh/ft^2 (750 kWh/m^2) of conditioned space.	Design Analysis, Appendix E: Energy Modeling
§7.4.2: Building Envelope			
❑	❑	§7.4.2: The building envelope complies with Section 5 of ANSI/ASHRAE/IESNA Standard 90.1 with the following modifications and additions.	
✓	❑	§7.4.2.1: The building envelope complies with the requirements in Tables A-1 to A-8 in Normative Appendix A. These requirements supersede the requirements in Tables 5.5-1 to 5.5-8 of ANSI/ASHRAE/IESNA Standard 90.1. ❑ Exception: Buildings that comply with Section 8.3.4 regardless of building area are exempt from the SHGC criteria for skylights.	Design Analysis, Appendix A: Project Tracking Sheet
✓	❑	§7.4.2.2: Roofs comply with the provisions of Section 5.3.2.3 and Tables A-1 to A-8 of this standard. Section 5.5.3.1.1 of ANSI/ASHRAE/IESNA Standard 90.1 and Table 5.5.3.1 of ANSI/ASHRAE/IESNA Standard 90.1 were not used.	Design Analysis, Appendix A: Project Tracking Sheet
❑	✓	§7.4.2.3: Single-rafter roofs comply with the requirements in Table A-9 in Normative Appendix A. These requirements supersede the requirements in Section A2.4.2.4 of ANSI/ASHRAE/IESNA Standard 90.1. Section A2.4.2.4 and Table A2.4.2 of ANSI/ASHRAE/IESNA Standard 90.1 were not used.	
✓	❑	§7.4.2.4: The total vertical fenestration area is less than 40% of the gross wall area. This requirement supersedes the requirement in Section 5.5.4.2.1 of ANSI/ASHRAE/IESNA Standard 90.1.	Design Analysis, Appendix A: Project Tracking Sheet
❑	❑	§7.4.2.5: For climate zones 1–5, the vertical fenestration on the west, south, and east is shaded by permanent projections that have an area-weighted average PF of not less than 0.50. ❑ Exception: Vertical fenestration that receives direct solar radiation for fewer than 250 hours per year because of shading by permanent external buildings, existing permanent infrastructure, or topography.	Design Analysis, Appendix F: ANSI/ASHRAE Standard 189.1 Compliance

Energy Efficiency Compliance Documentation – Prescriptive

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Complies	Not applicable	Requirement	Document Reference
§7.4.2: Building Envelope Cont.			
✓	❑	§7.4.2.6: For SHGC compliance, the methodology in exception (b) to Section 5.5.4.4.1 of ANSI/ASHRAE/IESNA Standard 90.1 were applied (provided that the SHGC multipliers in Table 7.4.2.6 are used). This requirement supersedes the requirement in Table 5.5.4.4.1 of ANSI/ASHRAE/IESNA Standard 90.1. Table 5.5.4.4.1 of ANSI/ASHRAE/IESNA Standard 90.1 was not applied.	Design Analysis, Appendix F: ANSI/ASHRAE Standard 189.1 Compliance
✓	❑	§7.4.2.6: The vertical fenestration is north-oriented and has a maximum SHGC of 0.10 greater than that specified in Tables A-1 through A-8 in Normative Appendix A. Separate calculations were performed for these sections of the building envelope, and these values were not averaged with any others for compliance purposes.	A-603, Window Schedule
✓	❑	§7.4.2.7: For vestibules, the exceptions to Section 5.4.3.4 of ANSI/ASHRAE/IESNA Standard 90.1 were applied (provided that climate zone 4 is deleted from exception (e) to Section 5.4.3.4 of ANSI/ASHRAE/IESNA Standard 90.1 and that climate zone 4 is added to exception (f) to Section 5.4.3.4 of ANSI/ASHRAE/IESNA Standard 90.1).	
✓	❑	§7.4.2.8: The building envelope trade-off option in Section 5.6 of ANSI/ASHRAE/IESNA Standard 90.1 was not applied (unless the procedure incorporates the modifications and additions to ANSI/ASHRAE/IESNA Standard 90.1 noted in Section 7.4.2).	
✓	❑	§7.4.2.9a: To reduce solar gains from the east and west in climate zones 1 through 4, the fenestration area and SHGC complies with the calculation in 7.4.2.9a.	173133A_CIC_BTH_Architectural: Schedule: ASHRAE 189.1-2009, 7.4.2.9a Part 1/2
❑	✓	§7.4.2.9b: To reduce solar gains from the west in climate zones 5 and 6, the fenestration area and SHGC complies with the calculation in 7.4.2.9b. Exceptions 7.4.2.9: ❑ a. Vertical fenestration that complies with the exception to Section 5.5.4.4.1 (c) of ANSI/ASHRAE/IESNA Standard 90.1. ❑ b. Buildings that have an existing building or existing permanent infrastructure within 20 ft (6 m) to the south or north that is at least half as tall as the proposed building. ❑ c. Buildings with shade on 75% of the west- and east-oriented vertical fenestration areas from existing buildings, existing permanent infrastructure, or topography at 9 a.m. and 3 p.m. on the summer solstice. ❑ d. Alterations and additions with no increase in vertical fenestration area.	
✓	❑	§7.4.2.10: The building envelope was designed and constructed with a continuous air barrier that complies with Normative Appendix B to control air leakage into, or out of, the conditioned space. All air barrier components of each envelope assembly are clearly identified on construction documents and the joints, interconnections, and penetrations of the air barrier components are detailed. ❑ Exception: Building envelopes of semiheated spaces provided that the building envelope complies with Section 5.4.3.1 of ANSI/ASHRAE/IESNA Standard 90.1.	Sheet A-311: This requirement is partially fulfilled--the remainder of the documentation requirements are not provided at this level of detail.

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Complies	Not applicable	Requirement	Document Reference
§7.4.3: Heating, Ventilating, and Air Conditioning			
❑	❑	§7.4.3: The heating, ventilating, and air conditioning complies with Section 6 of ANSI/ASHRAE/IESNA Standard 90.1 with the following modifications and additions.	
❑	❑	§7.4.3.1: The Project complies with one of the following: ❑ a. EPAct baseline. Products comply with the minimum efficiencies addressed in the National Appliance Energy Conservation Act (NAECA), Energy Policy Act (EPAct), and the Energy Indepen-dence and Security Act (EISA), or ❑ b. Higher Efficiency. Products comply with the greater of the ENERGY STAR requirements in Section 7.4.7.3 and the values in Normative Appendix C. These requirements supersede the requirements in Tables 6.8.1A to 6.8.1J of ANSI/ASHRAE/IESNA Standard 90.1. The building project complies with Sections 7.4.1.1 and 7.4.5.1 with the following modifications: 1. The on-site renewable energy systems required in Section 7.4.1.1 shall provide an annual energy production of not less than 4.0 kBtu/ft2 (13 kWh/m2). 2. The peak load reduction systems required in Section 7.4.5.1 shall be capable of reducing electric peak demand by not less than 5% of the projected peak demand.	Not provided at this level of detail.
❑	❑	§7.4.3.2: DCV is used for densely occupied spaces. This requirement supersedes the occupant density threshold in Section 6.4.3.9 of ANSI/ASHRAE/IESNA Standard 90.1.	
❑	❑	§7.4.3.2: The DCV system is designed to be in compliance with ANSI/ASHRAE Standard 62.1. Occupancy assumptions are shown in the design documents for spaces required to have DCV. All CO2 sensors used as part of a DCV system or any other system that dynamically controls outdoor air shall meet requirements a through d as listed in 7.4.3.2.	
❑	❑	§7.4.3.3: For duct sealing, Seal Level A was be used. This requirement supersedes the requirements in Table 6.4.4.2A of ANSI/ASHRAE/IESNA Standard 90.1.	Not provided at this level of detail.
❑	❑	§7.4.3.4: Systems have economizers meeting the requirements in Section 6.5.1 of ANSI/ASHRAE/IESNA 90.1 except as noted in 1 through 4 of 7.4.3.4. ❑ Exception: All the exceptions in Sections 6.5.1 and 6.5.1.3 of ANSI/ASHRAE/IESNA Standard 90.1 apply except as noted in 1 through 3 in 7.4.3.4 Exceptions.	Not provided at this level of detail.
❑	❑	§7.4.3.5: Exception (a) to Section 6.5.2.1 of ANSI/ASHRAE/IESNA Standard 90.1 have been replaced by the following: zones for which the volume of air that is reheated, re-cooled, or mixed is not greater than the larger of (1) the design outdoor airflow rate for the zone, or (2) 15% of the zone design peak supply rate.	Not provided at this level of detail.
❑	❑	§7.4.3.6: Systems have fan power limitations 10% below limitations specified in Table 6.5.3.1.1A of ANSI/ASHRAE/IESNA Standard 90.1. This requirement supersedes the requirement in Section 6.5.3.1 and Table 6.5.3.1.1A of ANSI/ASHRAE/IESNA Standard 90.1. All exceptions in Section 6.5.3.1 of ANSI/ASHRAE/IESNA Standard 90.1 shall apply.	Not provided at this level of detail.
❑	❑	§7.4.3.7a: DX systems with a capacity greater than 65,000 Btu/h (19 kW) have a minimum of two stages of cooling capacity.	Not provided at this level of detail.
❑	✓	§7.4.3.7b: Air-handling and fan-coil units with chilled-water cooling coils and supply fans with motors greater than or equal to 5 hp have their supply fans controlled by two-speed motors or variable-speed drives. At cooling demands less than or equal to 50%, the supply fan controls are able to reduce the airflow to no greater than the larger of the following: 1. Two-thirds of the full fan speed, or 2. The volume of outdoor air required to meet the ventilation requirements of ANSI/ASHRAE Standard 62.1.	

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§7.4.3: Heating, Ventilating, and Air Conditioning Cont.			
❑	❑	§7.4.3.7c: All air-conditioning equipment and air-handling units with direct expansion cooling and a cooling capacity at AHRI conditions greater than or equal to 110,000 Btu/h (32.2 kW) that serve single zones have their supply fans controlled by two-speed motors or variable-speed drives. . At cooling demands less than or equal to 50%, the supply fan controls are able to reduce the airflow to no greater than the larger of the following: 1. Two-thirds of the full fan speed, or 2. The volume of outdoor air required to meet the ventilation requirements of ANSI/ASHRAE Standard 62.1.	Not provided at this level of detail.
❑	❑	§7.4.3.7d: d. All DX and chilled-water VAV units are equipped with variable-speed fans that result in less than 30% power at 50% flow. ❑ Exception 7.4.3.7: When air ventilation rates or air exchange rates require constant volume fan operation.	Not provided at this level of detail.
❑	❑	§7.4.3.8: Each fan system has an energy recovery system when the system's supply airflow rate exceeds the value listed in Table 7.4.3.8 based on the climate zone and percentage of outdoor air at design condi-tions. Where a single room or space is supplied by multiple units, the aggregate supply cfm (L/s) of those units was used in applying this requirement.	Not provided at this level of detail.
❑	❑	§7.4.3.8: Energy recovery systems required by this section have at least 60% energy recovery effectiveness. Sixty percent energy recovery effectiveness shall mean a change in the enthalpy of the outdoor air supply equal to 60% of the difference between the outdoor air and return air enthalpies at design condi-tions. Provisions have been made to bypass or control the energy recovery system to permit air economizer operation as required by Section 7.4.3.4.	Not provided at this level of detail.
❑	✓	§7.4.3.9: In addition to the requirements in Section 6.5.7.1 of ANSI/ASHRAE/IESNA Standard 90.1, commercial kitchen Type I and Type II hood systems have variable-speed control for exhaust and makeup air fans to reduce hood airflow rates at least 50% during those times when cooking is not occurring and the cooking appliances are up to temperature in a standby, ready-to-cook mode. All exceptions in Section 6.5.7.1 of ANSI/ASHRAE/IESNA Standard 90.1 shall apply.	
❑	❑	§7.4.3.10: Duct insulation complies with the minimum requirements in Tables C-9 and C-10 in Normative Appendix C. These requirements supersede the requirements in Tables 6.8.2A and 6.8.2B of ANSI/ASHRAE/IESNA Standard 90.1.	Not provided at this level of detail.
❑	❑	§7.4.3.11: Pipe insulation complies with the minimum requirements in Table C-11 in Normative Appendix C. These requirements supersede the requirements in Table 6.8.3 of ANSI/SHRAE/IESNA Standard 90.1. The exceptions a through e in Section 6.4.4.1.3 of ANSI/ASHRAE/IESNA Standard 90.1 shall apply.	Not provided at this level of detail.
❑	✓	§7.4.3.12: In hotels and motels with over 50 guest rooms, the lighting switched outlets, television, and HVAC equipment serving each guest room are automatically controlled such that the lighting, switched outlets, and televisions will be turned off and the HVAC setpoint raised at least 5°F (3°C) in the cooling mode and lowered at least 5°F (3°C) in the heating mode whenever the guest room is unoccupied.	

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Complies	Not applicable	Requirement	Document Reference
§7.4.4: Service Water Heating			
❑	❑	§7.4.4: The service water heating complies with Section 7 of ANSI/ASHRAE/IESNA Standard 90.1 with the following modifications and additions.	
❑	❑	§7.4.4.1: Equipment complies with the minimum efficiencies in Table C-12 in Normative Appendix C. These requirements supersede the requirements in Table 7.8 of ANSI/ASHRAE/IESNA Standard 90.1.	Not provided at this level of detail.
❑	❑	§7.4.4.2: Pipe insulation complies with Section 7.4.3.11. These requirements supersede the requirements in Section 7.4.3 of ANSI/ASHRAE/IESNA Standard 90.1.	Not provided at this level of detail.
❑	✓	§7.4.4.3: Pools heated to more than 90°F (32°C) have side and bottom surfaces insulated on the exterior with a minimum insulation value of R-12 (R-2.1).	
§7.4.5: Power			
❑	❑	§7.4.5: The power complies with Section 8 of ANSI/ASHRAE/IESNA Standard 90.1 with the following modifications and additions.	
❑	❑	§7.4.5.1: The Building project contains automatic systems, such as demand limiting or load shifting, that are capable of reducing electric peak demand of the building by not less than 10% of the projected peak demand. Standby power generation is not used to achieve the reduction in peak demand.	Not provided at this level of detail.
§7.4.6: Lighting			
❑	❑	§7.4.6: The lighting complies with Section 9 of ANSI/ASHRAE/IESNA Standard 90.1 as modified by Addendum i and the following modifications and additions.	
✓	❑	§7.4.6.1: The lighting power allowance is a maximum of 0.9 multiplied by the values determined in accordance with Sections 9.5 and 9.6. This requirement supersedes the requirements in Sections 9.5 and 9.6 of ANSI/ASHRAE/IESNA Standard 90.1.	173133A_CIC_BTH_Electrical.rvt: Schedule: ASHRAE 189.1 Lighting LPD
❑	❑	§7.4.6.2: Offices 250 ft2 (25 m2) or smaller; classrooms of any size; lecture, training, or vocational rooms of less than 1000 ft2 (100 m2); multipurpose rooms of less than 1000 ft2 (100 m2); conference rooms and meeting rooms less than 1000 ft2 (100 m2); and meeting centers are equipped with occupant sensor(s) to automatically turn lighting OFF within 30 minutes of all occupants leaving a space and allow “manual OFF” control. In addition, all occupancy sensor controls are either “manual ON” or bi-level “automatic ON” programmed to a low light level combined with multi-level circuitry and “manual ON” switching for higher light levels. Where such occupancy sensors are utilized within a daylit area and daylighting controls are utilized, the occupancy sensors work in conjunction with the daylighting controls complying with Section 7.4.6.5.	Not provided at this level of detail.
❑	❑	§7.4.6.3: The lighting in the areas listed in 7.4.63 are controlled by an occupant sensor with multi-level switching or dimming system that reduces lighting power a minimum of 50% when no persons are present. ❑ Exception: Areas lit by HID lighting with a lighting power density of 0.8 W/ft2 or less.	Not provided at this level of detail.
❑	❑	§7.4.6.4: Lighting in any area within a building that is required to be continuously illuminated for reasons of building security or emergency egress does not exceed 0.1 W/ft2 (1 W/m2). Any additional egress and security are controlled by an automatic control device that turns off the additional lighting.	Design Analysis, Appendix F: ANSI/ASHRAE Standard 189.1 Compliance

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§7.4.6: Lighting Cont.			
❑	❑	§7.4.6.5: Lighting in all daylight zones, including daylight zones under skylights and daylight zones adjacent to vertical fenestration, where the combined daylight zone per enclosed space is greater than 250 ft2 (25 m2), are provided with controls that automatically reduce lighting power in response to available daylight by either: ❑ a. Continuous daylight dimming, or ❑ b. A combination of stepped switching and daylight-sensing automatic controls, which are capable of incrementally reducing the light level in steps automatically and turning the lights off automatically. Exceptions: ❑ 1. Window display and exhibition lighting. ❑ 2. Conference rooms greater than 250 ft2 (25 m2) that have a lighting control system with at least four scene options. ❑ 3. Lighting in conference rooms that is dimmable and controlled by dimming controls that are located within the space and accessible to the space occupants. ❑ 4. Saunas, steam rooms, and spaces containing swimming pools or spa pools. ❑ 5. Spaces where medical procedures are performed. ❑ 6. Spaces within dwelling units. ❑ 7. Spaces within hotel and motel guest rooms and suites. ❑ 8. Daylight zones where the height of existing adjacent structures above the window is at least twice the distance between the window and adjacent structures, measured from the top of the glazing.	Not provided at this level of detail.
❑	❑	§7.4.6.6: Occupancy sensors have “manual ON”, “automatic OFF” controls. ❑ Exception: Occupancy sensor controls required in Section 7.4.6.3.	Not provided at this level of detail.
❑	❑	§7.4.6.7: All outdoor lighting controls comply with Section 9 of ANSI/ASHRAE/IESNA Standard 90.1 with the following modifications and additions. For lighting of building facades, parking lots, garages, canopies (sales and non-sales), and all outdoor sales areas, automatic controls are installed to reduce the sum of all lighting power (in watts) by a minimum of 50% one hour after normal business closing and to turn off outdoor lighting within 30 minutes after sunrise. Exceptions: ❑ 1. Lighting required by a health or life safety statute, ordinance, or regulation, including but not limited to, emergency lighting. ❑ 2. Lighting that is controlled by a motion sensor and photocontrol. ❑ 3. Lighting for facilities that have equal lighting requirements at all hours and are designed to operate conti-nuously. ❑ 4. Temporary outdoor lighting. ❑ 5. Externally illuminated signs and signs that are internally illuminated or have integral lamps.	Not provided at this level of detail.

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§7.4.7: Other Equipment			
❑	❑	§7.4.7: All other equipment complies with Section 10 of ANSI/ASHRAE/IESNA Standard 90.1 with the following modifications and additions.	
❑	❑	§7.4.7.1: Motors comply with the minimum requirements in Table C-13 in Normative Appendix C. These requirements supersede the requirements in Section 10.4.1 and Table 10.8 of ANSI/ASHRAE/IESNA Standard 90.1.	Not provided at this level of detail.
❑	❑	§7.4.7.2: Supermarkets with a floor area of 25,000 ft^2 (2500 m^2) or greater recover waste heat from the condenser heat rejection on permanently installed refrigeration equipment meeting *one* of the following criteria: ❑ 1. 25% of the refrigeration system full load total heat rejection. ❑ 2. 80% of the space heat, service water heating and dehumidification reheat.	Not provided at this level of detail.
❑	❑	§7.4.7.2: If a recovery system is installed in the refrigeration system, the system does not increase the saturated condensing temperature at design conditions by more than 5°F (3°C) and does not impair other head pressure control/energy reduction strategies.	Not provided at this level of detail.
❑	❑	§7.4.7.3: The following equipment within the scope of the applicable Energy Star program complies with the relevant criteria required to achieve the Energy Star label, if installed prior to the issuance of the certificate of occupancy (see Section 7.4.7.3 a–h for a complete equipment list): ❑ a. Appliances ❑ b. Heating and cooling equipment ❑ c. Electronics ❑ d. Office equipment ❑ e. Water heaters ❑ f. Lighting ❑ g. Commercial food service equipment ❑ h. Other products ❑ Exception: Products with minimum efficiencies addressed in the Energy Policy Act (EPAct) and the Energy Independence and Security Act (EISA), if the project complies with Section 7.4.3.1a.	Not provided at this level of detail.
❑	✓	§7.4.7.4a: Commercial refrigerators and freezers comply with the minimum efficiencies in Table C-14 in Normative Appendix C.	
❑	✓	§7.4.7.4a: There are no prohibited open refrigerated display cases not covered by strips or curtains.	
❑	✓	§7.4.7.4a: Lighting loads for commercial reach-in refrigerator/freezer display cases, including all power supplies or ballasts, do not exceed 42 watts per door for case doors up to 5 ft (1.5 m) in height and 46 watts per door for case doors greater than 5 ft (1.5 m) in height.	
❑	✓	§7.4.7.4b: Commercial clothes washers comply with the minimum efficiencies in Table C-15 in Normative Appendix C.	

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Complies	Not applicable	Requirement	Document Reference
§7.4.8: Energy Cost Budget			
✓	❑	§7.4.8: The Energy Cost Budget option in Section 11 of ANSI/ASHRAE/IESNA Standard 90.1 was not used.	

The proposed and baseline buildings comply with the mandatory requirements of ANSI/ASHRAE/USGBC/IES Standard 189.1-2009 and meet the Prescriptive Option requirements. Individual certifying authenticity of the data provided in this analysis:

Signature:	Date:	
Printed Name:	License/Registration #:	
Company Name:		

Water Use Efficiency Compliance Documentation – Prescriptive

Project Name: U.S. Army Criminal Investigations Command--RA 5-9	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
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Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
§6.4.1: Site Water Use Reductions			
❑	❑	§6.4.1: Golf courses and driving ranges use only municipally-reclaimed water and/or alternate on-site sources of water; in other landscaped areas, a maximum of one third of *improved landscape* area is irrigated with potable water – all other irrigation is provided from alternate on-site sources or municipally reclaimed water.	
❑	❑	§6.4.1: Athletic fields have been excluded from the calculation of *improved landscape* for schools, residential common areas, and public recreational facilities.	
❑	❑	§6.4.1: Potable water has been temporarily used on newly installed landscape during the landscape establishment period.	
❑	❑	§6.4.1: The amount of potable water used during the landscape establishment period does not exceed 70% ET_o for turfgrass and 55% ET_o for other plantings.	
❑	❑	§6.4.1: Municipally reclaimed water is available at a water main within 200 ft (60 m) of the project site and has been used in lieu of potable water during the landscape establishment period.	
❑	❑	§6.4.1: Once the landscape establishment period ended, irrigation water use complied with the requirements listed in §6.3.1 and §6.4.1.	
§6.4.2: Building Water Use Reductions			
❑	❑	§6.4.2.1a: For cooling tower makeup water having < 200 ppm (200 mg/L) of total hardness (expressed as calcium carbonate), at least 5 cycles of concentration have been achieved.	Not provided at this level of detail.
❑	❑	§6.4.2.1b: For cooling tower makeup water having > 200 ppm (200 mg/L) of total hardness (expressed as calcium carbonate), at least 3.5 cycles of concentration have been achieved. ❑ Exception: Where the total dissolved solids concentration of the discharge water exceeds 1500 mg (1500 ppm/L), or silica exceeds 150 ppm (150 mg/L), measured as silicon dioxide, before the above cycles of concentration are reached.	Not provided at this level of detail.
❑	✓	§6.4.2.2a: Commercial food service operations use high-efficiency pre-spray valves per §6.4.2.2.	
❑	✓	§6.4.2.2b: Commercial food service operations use dishwashers that are ENERGY STAR certified.	
❑	✓	§6.4.2.2c: Commercial food service operations use boilerless/connectionless food steamers that consume no more than 2.0 gal/h (7.5 L/h).	
❑	✓	§6.4.2.2d: Commercial food service operations use combination ovens that consume no more than 10 gal/h (38 L/h).	
❑	✓	§6.4.2.2e: Commercial food service operations use air-cooled ice machines that are ENERGY STAR certified.	
❑	✓	§6.4.2.2f: Commercial food service operations are equipped with hands-free faucet controllers within the food preparation area of the kitchen and dish room, including pot sinks and washing	
❑	✓	§6.4.2.3a: Medical and lab facilities use only water-efficient steam sterilizers.	
❑	✓	§6.4.2.3a: Steam sterilizers use water-tempering devices that only allow water to flow when the discharge of condensate or hot water from the sterilizer > 140°F.	
❑	✓	§6.4.2.3a: Vacuum sterilizers use mechanical vacuum equipment in place of Venturi-type vacuum systems.	
❑	✓	§6.4.2.3b: Medical and lab facilities use film processor water recycling units where large frame X-ray films of more than 6 inches are processed. Small dental X-ray equipment is exempt from this requirement.	

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Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
❑	✓	§6.4.2.3c: Where the digital networks are installed, medical and lab facilities use digital imaging and radiography systems.	
❑	✓	§6.4.2.3d: Medical and lab facilities use a dry-hood scrubber system. For projects that determine wet scrubber systems are necessary, the scrubber is equipped with a water recirculation system.	
❑	✓	§6.4.2.3d: For medical and lab facilities that include hood washdown systems, the hood is equipped with self-closing valves	

Water Use Efficiency Compliance Documentation – Prescriptive

Project Name: U.S. Army Criminal Investigations Command--RA 5-9	
Project Address:	Date: 12 September 2012
Designer of Record:	Telephone:
Contact Person:	Telephone:
City:	

Prescriptive Option

Complies	Not applicable	Requirement	Document Reference
Building Water Use Reductions Cont.			
❑	✓	§6.4.2.3e: Medical and lab facilities use only dry vacuum pumps, unless fire and safety codes require a liquid ring pump.	
❑	✓	§6.4.2.3f(1): For filtration processes in medical and lab facilities, pressure gauges are used to determine and display when to backwash or change cartridges.	
❑	✓	§6.4.2.3f(2): For ion exchange and softening processes in medical and lab facilities, recharge cycles have been set by volume of water treated or based upon conductivity or hardness.	
❑	✓	§6.4.2.3f(3): For reverse osmosis and nanofiltration equipment in medical and lab facilities with a capacity > 100 L/hour, reject water does not exceed 60% of the feed water and is used as scrubber feed water or for other beneficial uses on the project site.	
❑	✓	§6.4.2.3f(4): For medical and lab facilities, simple distillation has not been used as a means of water purification.	
❑	✓	§6.4.2.3g: Food service operations that are located within medical or lab faciliites comply with §6.4.2.2.	
❑	✓	§6.4.3a: Ornamental fountains are supplied either by alternate on-site sources of water or municipally reclaimed water.	
❑	✓	§6.4.3a: Fountains are equipped with makeup water meters.	
❑	✓	§6.4.3a: Fountains are equipped with leak detection devices that shut off water flow if a leak of more than 1 gallon per hour is detected.	
❑	✓	§6.4.3a: Fountains are able to recirculate, filter, and treat all water for reuse within the system. ❑ Exception: For fountains where alternate on-site sources of water or municipally reclaimed water are not available with 500 ft (150 m) of the building project site, potable water is allowed to be used for water features with less than 10,000 gal (38,000 L) capacity.	
❑	✓	§6.4.3b(1): Pools and spas must recover filter backwash water for reuse on landscaping or other applications, or treat and reuse backwash water within the system.	
❑	✓	§6.4.3b(2): For pools and spas that use removable cartridges, only reusable cartridges and systems are used.	
❑	✓	equipment has been used that includes a pressure drop gauge to determine when the filter needs to be backwashed and a sight glass enabling the operator to determine when to stop the backwash cycle.	
❑	✓	§6.4.3b(3): If pool and spa splash troughs are provided, they drain back into the pool or spa.	

The proposed and baseline buildings comply with the mandatory requirements of ASHRAE/USGBC/IES Standard 189.1-2009 and meet the Prescriptive Option requirements. Individual certifying authenticity of the data provided in this analysis:

Signature: Date:	
Printed Name: License/Registration #:	
Company Name:	

PARSONS BRINCKERHOFF

Page:	1 of 1
Made by:	JPB
Date:	10-Sep-2012
Checked by:	
Date:	

Subject: ASHRAE 189.1-2009 Projection Factor Calculation/SHGC Multiplier
CIDC RA 5-9

The minimum projection factor requirement is 0.5

PF = P/(D+H)

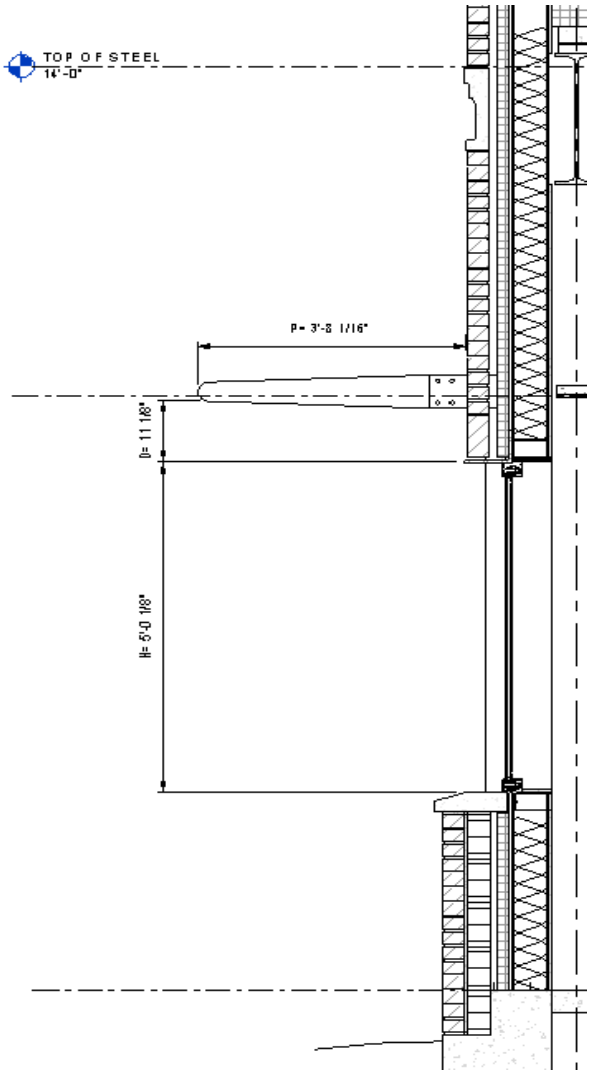
P= 44 in.
D= 11 in.
H= 60 in.

PF= 0.62

Check:

0.62 ≥ 0.50

0.62 → SHGC multiplier of 0.92 is allowed for E, S, W orientations.
SHGC multiplier of 0.96 is allowed for N orientation.



PARSONS BRINCKERHOFF *Computation Sheet*

page	1 of 1
made by	RAGVI SINHA
date	03.12.2012
checked by	
date	

subject RA 5-9 LPD CALCULATIONS

EMERGENCY LIGHTS : (2) 1W LED LAMP FIXTURE

117	- CORRIDOR :	521 ft² / 3 EMERGENCY LIGHTS	= 0.01 W/ft²
127	- CORRIDOR :	670 ft² / 4	= 0.01 W/ft²
105	- CORRIDOR :	316 ft² / 2	= 0.01 W/ft²
102	- CORRIDOR :	130 ft² / 1	= 0.01 W/ft²
101	- VISITOR WAITING :	235 ft² / 1	= 0.04 W/ft²
002	- VESTIBULE WEST :	62 ft² / 1	= 0.03 W/ft²
003	- VESTIBULE NORTH :	77 ft² / 1	= 0.02 W/ft²